Di181

SERVICE MANUAL

[GENERAL]

Safety Precautions for Inspection and Service

When performing inspection and service procedures, observe the following precautions to prevent accidents and ensure utmost safety.

✽ Depending on the model, some of the precautions given in the following do not apply.

Different markings are used to denote specific meanings as detailed below.

WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

The following graphic symbols are used to give instructions that need to be observed.

Used to call the service technician's attention to what is graphically represented inside the marking (including a warning).

Used to prohibit the service technician's from doing what is graphically represented inside the marking.

Used to instruct the service technician's to do what is graphically represented inside the marking.

WARNING

1. Always observe precautions.

- Parts requiring special attention in this product will include a label containing the mark shown on the left plus precautionary notes. Be sure to observe the precautions.
- Be sure to observe the "Safety Information" given in the Operator's Manual.

2. Before starting the procedures, be sure to unplug the power cord.

- This product contains a high-voltage unit and a circuit with a large current capacity that may cause an electric shock or burn.
- The product also contains parts that can jerk suddenly and cause injury.
- If this product uses a laser, laser beam leakage may cause eye damage or blindness.

3. Use the specified parts.

- For replacement parts, always use the genuine parts specified in the manufacturer's parts manual. Installing a wrong or unauthorized part could cause dielectric breakdown, overload, or undermine safety devices resulting in possible electric shock or fire.
- Replace a blown electrical fuse or thermal fuse with its corresponding genuine part specified in the manufacturer's parts manual. Installing a fuse of a different make or rating could lead to a possible fire. If a thermal fuse blows frequently, the temperature control system may have a problem and action must be taken to eliminate the cause of the problem.

4. Handle the power cord with care and never use a multiple outlet.

- Do not break, crush or otherwise damage the power cord. Placing a heavy object on the power cord, or pulling or bending it may damage it, resulting in a possible fire or electric shock.
- Do not use a multiple outlet to which any other appliance or machine is connected.
- Be sure the power outlet meets or exceeds the specified capacity.

5. Be careful with the high-voltage parts.

- A part marked with the symbol shown on the left carries a high voltage. Touching it could result in an electric shock or burn. Be sure to unplug the power cord before servicing this part or the parts near it.

6. Do not work with wet hands.

- Do not unplug or plug in the power cord, or perform any kind of service or inspection with wet hands. Doing so could result in an electric shock.

7. Do not touch a high-temperature part.

- A part marked with the symbol shown on the left and other parts such as the exposure lamp and fusing roller can be very hot while the machine is energized. Touching them may result in a burn.
- Wait until these parts have cooled down before replacing them or any surrounding parts.

8. Maintain a grounded connection at all times. (This item may not apply in the USA.)

- Be sure to connect the ground wire to the ground terminal even when performing an inspection or repair. Without proper grounding, electrical leakage could result in an electric shock or fire.
- Never connect the ground wire to a gas pipe, water pipe, telephone ground wire, or a lightning conductor.

9. Do not remodel the product.

- Modifying this product in a manner not authorized by the manufacturer may result in a fire or electric shock. If this product uses a laser, laser beam leakage may cause eye damage or blindness.

10. Restore all parts and harnesses to their original positions.

- To promote safety and prevent product damage, make sure the harnesses are returned to their original positions and properly secured in their clamps and saddles in order to avoid hot parts, high-voltage parts, sharp edges, or being crushed.
- To promote safety, make sure that all tubing and other insulating materials are returned to their original positions. Make sure that floating components mounted on the circuit boards are at their correct distance and position off the boards.

CAUTION

1. Precautions for Service Jobs

- A toothed washer and spring washer, if used originally, must be reinstalled. Omitting them may result in contact failure which could cause an electric shock or fire.
- When reassembling parts, make sure that the correct screws (size, type) are used in the correct places. Using the wrong screw could lead to stripped threads, poorly secured parts, poor insulating or grounding, and result in a malfunction, electric shock or injury.
- Take great care to avoid personal injury from possible burrs and sharp edges on the parts, frames and chassis of the product.
- When moving the product or removing an option, use care not to injure your back or allow your hands to be caught in mechanisms.

2. Precautions for Servicing with Covers and Parts Removed

- Wherever feasible, keep all parts and covers mounted when energizing the product.
- If energizing the product with a cover removed is absolutely unavoidable, do not touch any exposed live parts and use care not to allow your clothing to be caught in the moving parts. Never leave a product in this condition unattended.
- Never place disassembled parts or a container of liquid on the product. Parts falling into, or the liquid spilling inside, the mechanism could result in an electric shock or fire.
- Never use a flammable spray near the product. This could result in a fire.
- Make sure the power cord is unplugged before removing or installing circuit boards or plugging in or unplugging connectors.
- Always use the interlock switch actuating jig to actuate an interlock switch when a cover is opened or removed. The use of folded paper or some other object may damage the interlock switch mechanism, possibly resulting in an electric shock, injury or blindness.

3. Precautions for the Working Environment

- The product must be placed on a flat, level surface that is stable and secure.
- Never place this product or its parts on an unsteady or tilting workbench when servicing.
- Provide good ventilation at regular intervals if a service job must be done in a confined space for a long period of time.
- Avoid dusty locations and places exposed to oil or steam.
- Avoid working positions that may block the ventilation ports of the product.

4. Precautions for Handling Batteries

- Replace a rundown battery with the same type as specified in the manufacturer's parts manual.
- Before installing a new battery, make sure of the correct polarity of the installation or the battery could burst.
- Dispose of used batteries according to the local regulations. Never dispose of them at the user's premises or attempt to try to discharge one.

5. Precautions for the Laser Beam (Only for Products Employing a Laser)

- Removing the cover marked with the following caution label could lead to possible exposure to the laser beam, resulting in eye damage or blindness. Be sure to unplug the power cord before removing this cover.
- If removing this cover while the power is ON is unavoidable, be sure to wear protective laser goggles that meet specifications.
- Make sure that no one enters the room when the machine is in this condition.
- When handling the laser unit, observe the “Precautions for Handling Laser Equipment.”

注意- ここを開くと不可視レーザ光が出ます。ビームを直接見たり、触れたりしないでください。
CAUTION- INVISIBLE LASER RADIATION WHEN OPEN AVOID EXPOSURE TO BEAM
VORSICHT- UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET NICHT DEM STRAHL AUSSETZEN
ADVARSEL- USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNNGÅ EKSPONERING FOR STRÅLEN
VARO! AVATTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE ÄLÄ KATSO SÄTEESEEN
ADVARSEL- USYNLIG LASERSTRÅLING VED ÅBNING UNDGÅ UDSÆTTELSE FOR STRÅLING
VARNING- OSYNLIG LASERSTRÅLNING NÅR DENNA DEL ÄR ÖPPNAD STRÅLEN ÄR FARLIG
注意： 当您打开这里时，会出现肉眼看不见的激光射线，请不要直视或接触光线。

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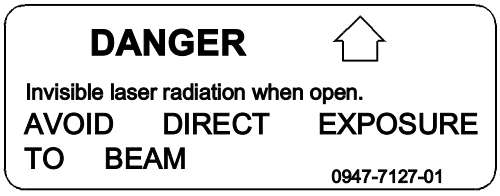

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Other Precautions

- To reassemble the product, reverse the order of disassembly unless otherwise specified.
- While the product is energized, do not unplug or plug connectors into the circuit boards or harnesses.
- The magnet roller generates a strong magnetic field. Do not bring it near a watch, floppy disk, magnetic card, or CRT tube.
- An air gun and vacuum cleaner generates a strong electrostatic charge that can destroy the ATDC sensor and other sensors. Before cleaning a component with one of these devices, be sure to remove all the sensors. Otherwise, use a blower brush and cloth when cleaning parts.
- When handling circuit boards with MOS ICs, observe the “INSTRUCTIONS FOR HANDLING THE PWBs WITH MOS ICs” (applicable only to the products using MOS ICs).
- The PC Drum is a very delicate component. Observe the precautions given in “HANDLING OF THE PC DRUM” because mishandling may result in serious image problems.
- Note that replacement of a circuit board may call for readjustments or resetting of particular items, or software installation.
- After completing a service job, perform a safety check. Make sure that all parts, wiring and screws are returned to their original positions.
- Check the area surrounding the service site for any signs of damage, wear or need of repair.
- Do not pull out the toner hopper while the toner bottle is turning. This could result in a damaged hopper motor or locking mechanism.
- If the product is to be run with the front door open, make sure that the toner hopper is in the locked position.

Used Batteries Precautions

ALL Areas

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the manufacturer.
Dispose of used batteries according to the manufacturer's instructions.

Germany

VORSICHT!

Explosionsgefahr bei unsachgemäßem Austausch der Batterie.
Ersatz nur durch denselben oder einen vom Hersteller empfohlenen ähnlichen Typ.
Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

France

ATTENTION

Ily a danger d'explosion s'ily a remplacement incorrec de la batterie.
Remplacer uniquement avec une batterie du meme type ou d'un type équivalent recommande par le constructueur.
Mettre au rebut les batteries usageés conformément aux instructions du fabricant.

Denmark

ADVARSEL!

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

Norway

ADVARSEL

Eksplosjonsfare ved feilaktig skifte av batteri.
Benytt samme batteritype eller en tilsvarende type anbefalt av apparatfabrikanten.
Brukte batterier kasseres i henhold til fabrikantens instruksjoner.

Sweden

VARNING

Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens instruktion.

Finland

VAROITUS

Paristo voi räjähtää, los se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä Käytetty paristo valmistajan ohjeiden mukaisesti.

GENERAL

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1 SAFETY INFORMATION

Laser Safety

This is a digital machine which prints by means of a laser. There is no possibility of danger from the laser, provided the machine is operated according to the instructions in this manual.

Since radiation emitted by the laser is completely confined within protective housing, the laser beam cannot escape from the machine during any phase of user operation.

This machine is certified as a Class 1 product. This means the machine does not produce hazardous laser radiation.

CAUTION: The use of controls, adjustments or performance of procedures other than those specified in this manual may result in hazardous radiation exposure. Because of this, Minolta strongly recommends that you operate your copy machine only as described in this documentation.

Internal Laser Radiation

Maximum Average Radiation Power: 15.6νW at laser aperture of the print head unit

Wavelength: 770-795nm

This product employs a Class IIIb Laser Diode that emits an invisible laser beam.
The Laser Diode and Scanning Polygon Mirror are incorporated in the print head unit.
The print head unit is NOT A FIELD SERVICE ITEM.
Therefore, the print head unit should not be opened under any circumstances.

For United States

CDRH regulation
This copier is certified as a Class 1 Laser product under the Radiation Performance Standard according to the Food, Drug and Cosmetic Act of 1990. Compliance is mandatory for Laser products marketed in the United States and is reported to the Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration of the U.S. Department of Health and Human Services (DHHS). This means that the device does not produce hazardous laser radiation.

The label shown on page G-3 indicates compliance with the CDRH regulations and must be attached to laser products marketed in the United States.

CAUTION: Use of controls, adjustments or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.

This is a semiconductor laser. The maximum power of the laser diode is 5mW and the wavelength is 770-795nm.

For Europe

CAUTION: Use of controls, adjustments or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.

This is a semiconductor laser. The maximum power of the laser diode is 5mW and the wavelength is 770-795nm.

For Denmark

ADVARSEL
Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion.
Undgå udsættelse for stråling.

Klasse 1 laser produkt der opfylder IEC60825 sikkerheds kravene.

For Finland

LUOKAN 1 LASERLAITE

VAROITUS
Laitteen käyttäminen muulla kuin tässä käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.

VARO
Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättomälle lasersäteilylle. Älä katso säteeseen.

For Sweden

KLASS 1 LASER APPARAT

VARNING
Om apparaten används på annat sätt än i denna bruksanvisning specificerats, kan användaren utsättas för osynlig laserstrålning, som överskrider gränsen för laserklass 1.

VARNING
Osynlig laserstråining när denna del är öppnad och spärren är urkopplad. Betrakta ej stråien.

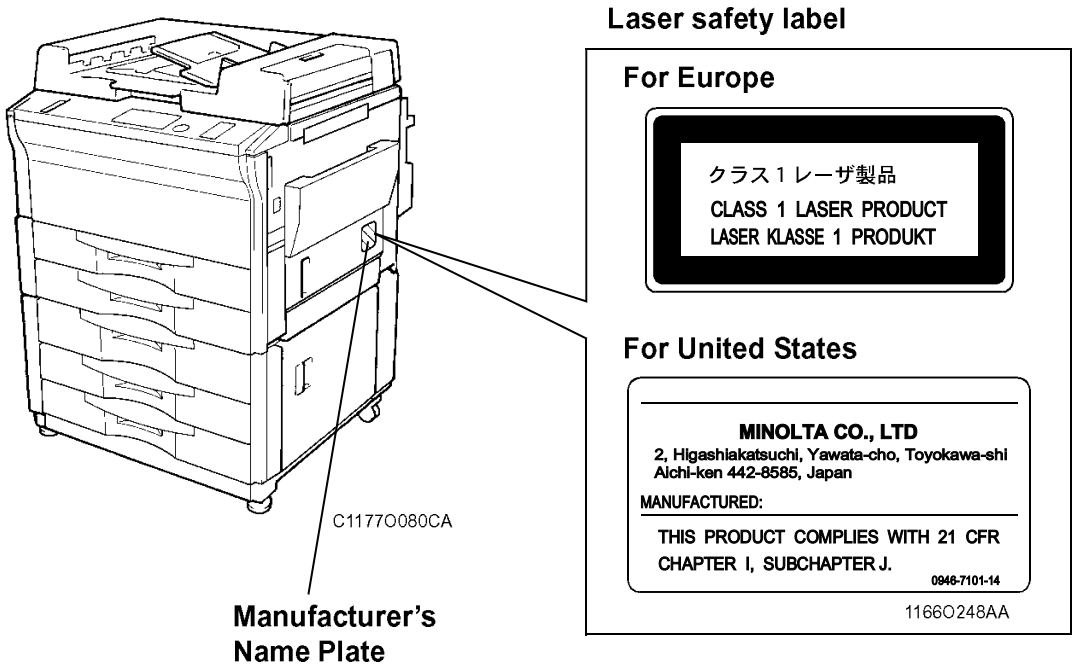
For Norway

ADVERSEL
Dersom apparatet brukes på annen måte enn spesifisert i denne bruksanvisning, kan brukeren utsettes för unsynlig laserstrålning, som overskrider grensen for laser klass 1.

Dette en halveder laser. Maksimal effekt till laserdiode er 5mW og bølgelengde er 770-795nm.

Laser Safety Label

A laser safety label is attached to the outside of the copy machine as shown below.



The Manufacturer's Name Plate is affixed at the position illustrated above.
Please write down the Model Name and Serial No. of your copier here.

Model:
Serial No.:

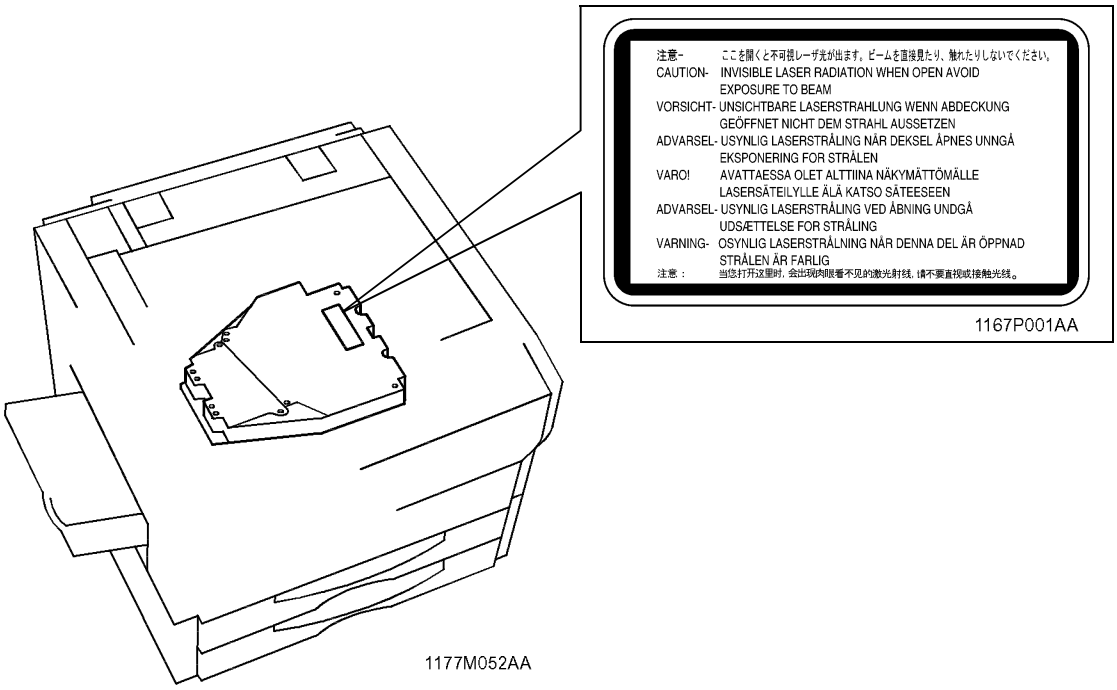
Label inside copy machine

The following laser safety label will be attached inside the copy machine as shown below.

Please read the following for your own protection.

⚠ Caution

Opening the cover indicated by the Caution label may expose you to harmful laser radiation which could cause damage or loss of eyesight. Do not open the cover when the power is on.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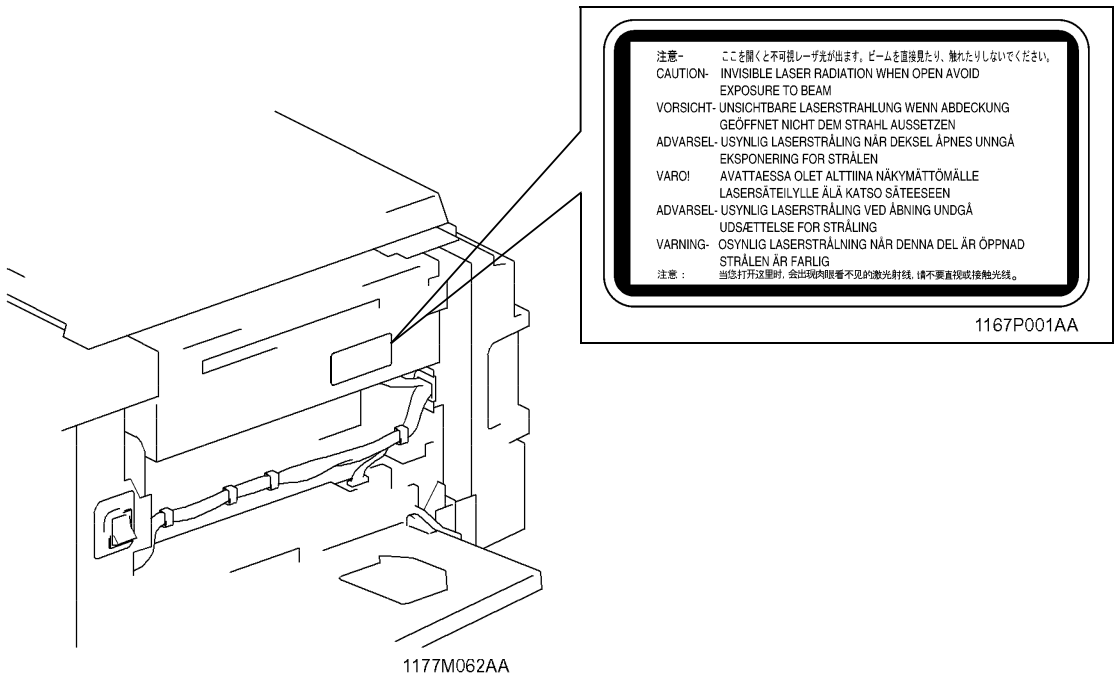
1177M052AA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1167P001AA
1177M062AA

ALL Areas

CAUTION
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type
recommended by the manufacturer.
Dispose of used batteries according
to the manufacturer's instructions.

Germany only

VORSICHT!
Explosinsgefahr bei unsachgemäßen austausch der
batterie. Ersatz nur durch denselben oder einen vom hersteller
empfohlenen ähnlichen typ. Entsorgung gebrauchter batterien
nach angaben des herstellers.

Denmark only

ADVARSEL!
Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering
Udskiftning må kun ske med batteri
af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

Norway only

ADVARSEL
Eksplosjonsfare ved feilaktig skifte av batteri.
Benytt samme batteritype eller en tilsvarende
type anbefalt av apparatfabrikanten.
Brukte batterier kasseres i henhold til fabrikantens
instruksjoner.

Sweden only

VARNING
Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent
typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens
instruktion.

Finland only

VAROITUS
Paristo voi räjähtää, los se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan
tyyppiin. Hävitä Käytetty paristo valmistajan ohjeiden
mukaisesti.

ALL Areas

CAUTION

"Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used IC Package according to the manufacturer's instructions."

Germany only

VORSICHT!

⇓"Austausch nur durch denselben oder einen vom Hersteller empfohlenen, gleichwertigen typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

2 SPECIFICATIONS

TYPE : Desktop (with Stationary Platen)
PHOTOCONDUCTOR : Organic Photoconductor
COPYING SYSTEM : Electrostatic Dry Powdered Image Transfer to Plain Paper
RESOLUTION : 600dpi
PAPER FEEDING SYSTEM : 3-Way system
- 1st Drawer: Holds up to 250 sheets of paper
- 2nd Drawer: Holds up to 250 sheets of paper
- Multi Bypass Table: 50 sheets of paper

EXPOSURE SYSTEM : Mirror Scanning, Slit Exposure
DEVELOPING SYSTEM : New Micro-Toning System
CHARGING SYSTEM : Comb Electrode DC Negative Corona with Scorotron System
IMAGE TRANSFER SYSTEM : Visible Image Transfer by means of a Single-Wire DC Positive Corona with Corotron System
PAPER SEPARATING SYSTEM : Single-Wire AC Corona with Corotron System, plus Paper Separator Finger
FUSING SYSTEM : Heat Roller
PAPER DISCHARGING SYSTEM : Charge Neutralizing Brush
MAXIMUM ORIGINAL SIZE : Metric-A3L; Inch-11" × 17"L

COPY MEDIUM

		1st Drawer	2nd Drawer	Multi Bypass Table
Medium	Plain paper (60 to 90 g/m^2)	■		■
	Translucent paper	—	—	■
	Transparencies	—	—	■
	Thick paper (91 to 157 g/m^2)	—	—	■
	Recycled paper	■	■	■
Dimensions	Maximum (Width × Length)	297 × 432 mm	297 × 432 mm	297 × 432 mm
	Minimum (Width × Length)	140 × 182 mm	140 × 182 mm	100 × 140 mm

■: Permissible —: Not permissible

MULTIPLE COPIES : 1 to 99
WARMING-UP TIME : 30 sec. or less with room temperature of 23 °C and rated power voltage
FIRST COPY TIME : A4C or 8-1/2" × 11"C: 9.0 sec. or less (in Full Size Mode using 1st Drawer)

CONTINUOUS COPY SPEED (copies/min.)

Area	Zoom Ratio / Size	× 1.000
Metric	A3L	13
	A4L	17
	A4C	18
	B4L	13

Area	Zoom Ratio / Size	× 1.000
Inch	11" × 17"(L)	13
	8-1/2" × 11"(L)	17
	8-1/2" × 11"(C)	18
	8-1/2" × 14"(L)	13

L: Lengthwise; C: Crosswise

ZOOM RATIOS

	Area / Mode	Metric	Inch
Fixed	Full Size	× 1.000	× 1.000
	Reduction	× 0.816 × 0.707 × 0.500	× 0.785 × 0.647 × 0.500
	Enlargement	× 1.154 × 1.414 × 2.000	× 1.214 × 1.294 × 2.000
Variable	50% to 200% (in 0.1% increments)		

LENS : Through Lens (F = 5.0, f = 55mm)
EXPOSURE LAMP : Fluorescent Lamp
Fusing Temperature : 185 °C

POWER/CURRENT CONSUMPTION (Copier Only)

Voltage	Exposure Lamp (Rating)	Fusing Heater Lamp (Rating)	Max. Power Consumption
115 V	24 V 18 W	115/120 V 900 W	1180 W
120 V			1220 W
127 V			1290 W
220 V		220/240 V 900 W	1195 W
240 V			1270 W

POWER REQUIREMENTS : 115 V, 120 V, 127 V, 220-240 V; 50/60 Hz

ENVIRONMENTAL CONDITIONS

Temperature	10 to 30 °C with a fluctuation of 10 °C or less per hour
Humidity	15 to 85% RH with a fluctuation of 10% RH or less hour
Ambient Illumination	3,000 lux or less
Levelness	1° (1.75 mm/100 mm)

DIMENSIONS (Copier Only) : Width....650 mm (25-1/2")
Depth....705 mm (27-3/4")
Height....530 mm (20-3/4")

WEIGHT : 69 kg (152 lbs)

3 PRECAUTIONS FOR INSTALLATION

3-1. Installation Site

To ensure safety and utmost performance of the copier, the copier should NOT be used in a place:

- Where it will be subjected to extremely high or low temperature or humidity.
- Where it will be subjected to sudden fluctuations in either temperature or humidity.
- Which is exposed to direct sunlight.
- Which is in the direct air stream of an air conditioner, heater, or ventilator.
- Which has poor ventilation or is dusty.
- Which does not have a stable, level floor or where it will receive undue vibration.
- Which is near any kind of heating device.
- Which is near volatile flammables (thinner, gasoline, etc.).
- Where it may be splashed with water.
- Which puts the operator in the direct stream of exhaust from the copier.
- Where ammonia gas might be generated.

3-2. Power Source

- If any other electrical equipment is sourced from the same power outlet, make sure that the capacity of the outlet is not exceeded.
- Use a power source with little voltage fluctuation.
- Never connect by means of a multiple socket any other appliances or machines to the outlet being used for the copier.
- Ensure that the copier does not ride on the power cord or communication cable of other electrical equipment, and that it does not become wedged into or underneath the mechanism.
- Make the following checks at frequent intervals:

✽ Is the power plug abnormally hot?
✽ Are there any cracks or scrapes in the cord?
✽ Has the power plug been inserted fully into the outlet?
✽ Does something, including the copier itself, ride on the power cord?

Use an outlet with a capacity of 115/120/127V or 220-240V.

3-3. Grounding

- Always ground the copier to prevent receiving electrical shocks in the case of electrical leakage.
- Connect the ground wire to the ground terminal of the outlet or a grounding contact which complies with the local electrical standards.
- Never connect the ground wire to a gas pipe, the ground wire for a telephone, lightning arrester, or a water pipe for fear of fire and electrical shock.

4 PRECAUTIONS FOR USE

4-1. To Ensure Optimum Conditions

- Never place a heavy object on the copier or subject the copier to shocks.
- Insert the power plug all the way into the outlet.
- Do not attempt to remove any panel or cover which is secured while the copier is making copies.
- Do not turn OFF the copier while it is making copies.
- Provide good ventilation when making a large number of copies continuously.
- Never use flammable sprays near the copier.
- If the copier becomes inordinately hot or produces abnormal noise, turn it OFF and unplug it.
- Do not turn ON the power switch at the same time when you plug the power cord into the outlet.
- When unplugging the power cord, do not pull on the cord; hold the plug and pull it out.
- Do not bring any magnetized object near the copier.
- Do not place a vase or vessel containing water on the copier.
- Be sure to turn OFF the power switch at the end of the workday or upon power failure.
- Use care not to drop paper clips, staples, or other small pieces of metal into the copier.

4-2. Operating Environment

The operating environmental requirements of the copier are as follows.

- Temperature: 10 to 30 °C
- Humidity: 15 to 85% RH
- Rate of temperature change: 10 °C/h
- Rate of humidity change: 10% RH/h

4-3. Power Requirements

The power source voltage requirements are as follows.

- Voltage fluctuation: AC115/120/127/220-240
  ±10% (copying performance assured)
  +10% / -15% (paper feeding performance assured)
- Frequency fluctuation: 50/60 Hz ±0.3%

4-4. Prohibitions

- It is prohibited to copy paper and hard currencies, government securities, and municipal bonds (even when they are stamped as “Sample”).
- For fear of infringement of copyright, it is also prohibited to copy copyrighted works, including books, music, works of art, maps, drawings, motion pictures, and photos except when the copy is to be for personal use only.

5 HANDLING OF CONSUMABLES

Before using any consumables, always read the label on its container carefully.

- Paper can be easily damaged by dampness. To prevent absorption of moisture, store paper, which has been removed from its wrapper but not loaded in the drawer, in a sealed plastic bag in a cool, dark place.
- Keep consumables out of the reach of children.
- Do not touch the PC Drum with bare hands.
- The same sized paper is of two kinds, short grain and long grain. Short grain paper should only be fed through the copier crosswise, long grain paper should only be fed lengthwise.
- If your hands become soiled with toner, wash them with soap and water.
- Do not throw away any used consumables (PC Drum, starter, toner, etc.). They are to be collected.
- Do not burn, bury in the ground, or throw into the water any consumables (PC Drum, starter, toner, etc.).
- Do not store consumables in a place which:
  - Is hot and humid.
  - Is subject to direct sunlight.
  - Has an open flame nearby.

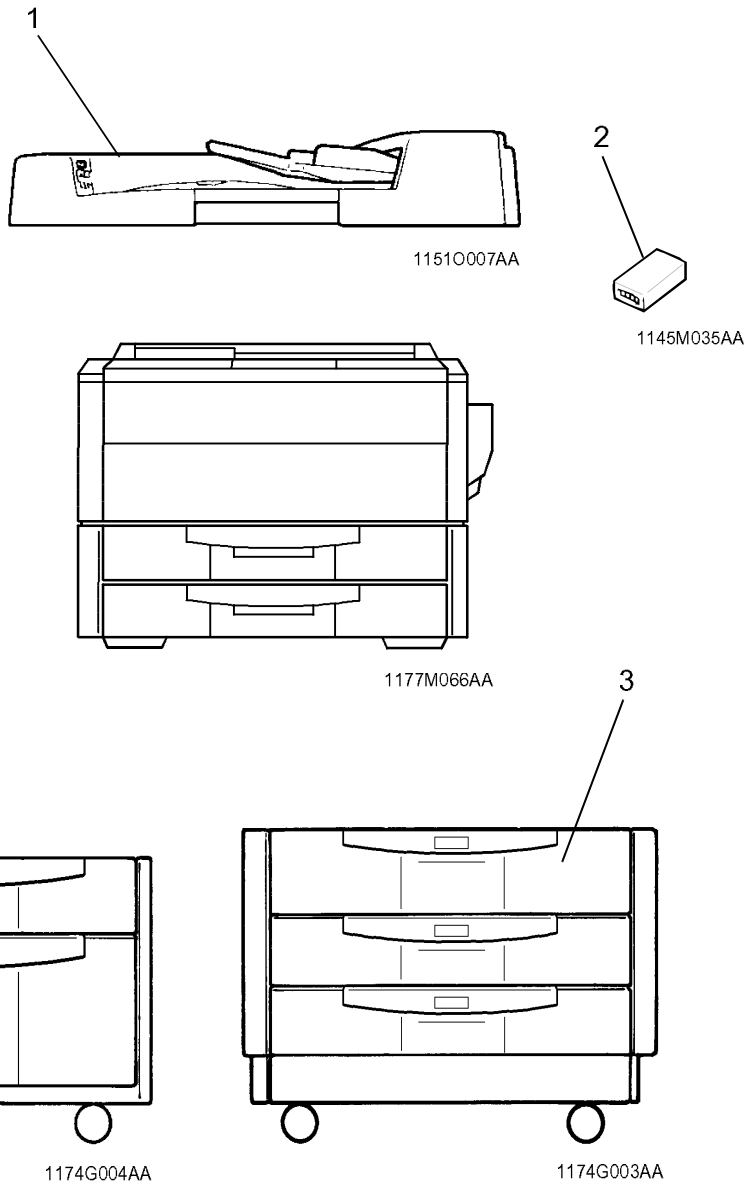
6 OTHER PRECAUTIONS

Use the following precautions when performing service jobs for a copier that uses a laser.

- When a service job needs to be performed in the laser beam path, such as when working around the printerhead or PC Drum, be sure first to unplug the power cord of the copier from the outlet.
- If the job requires that the power cord be left plugged in, observe the following precautions.

1. Take off your watch, ring and any other reflective object and wear laser protective goggles.
2. Keep users away from the job site.
3. Do not bring a highly reflective tool into the laser beam path during the service job.

7 SYSTEM OPTIONS



1. Automatic Document Feeder AF-5
2. Plug-in Counter
3. Paper Feed Cabinet PF-207
4. Paper Feed Cabinet PF-114

MECHANICAL/ ELECTRICAL

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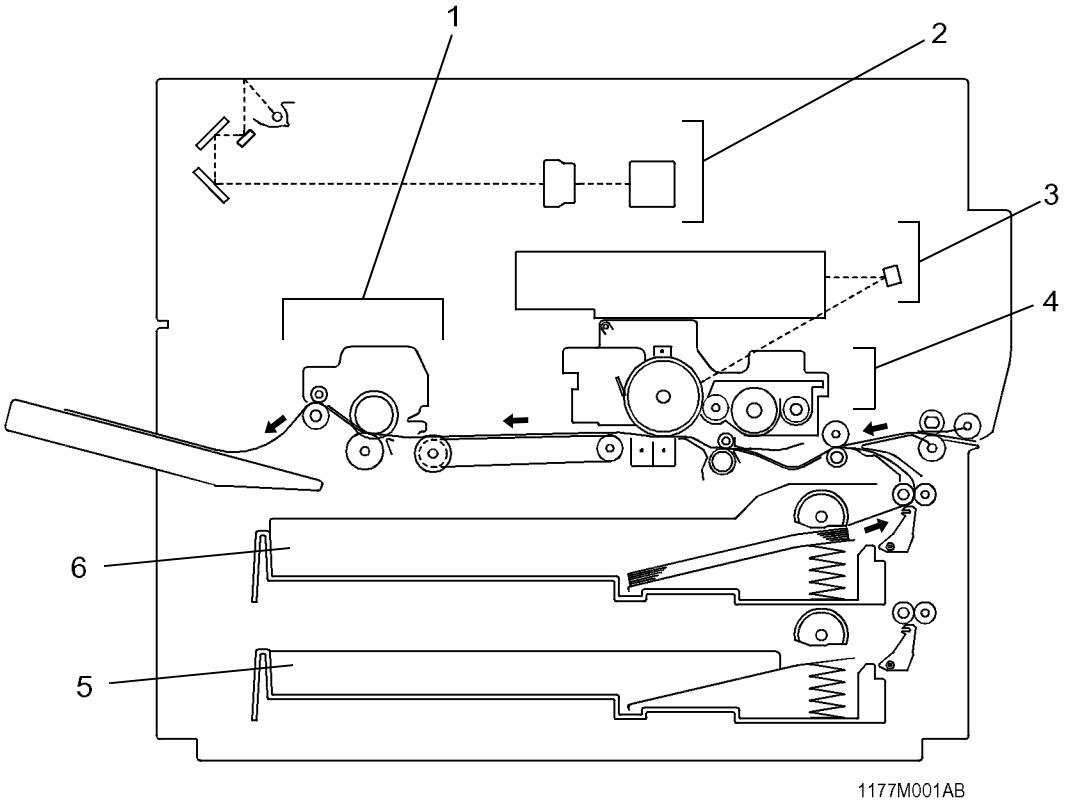
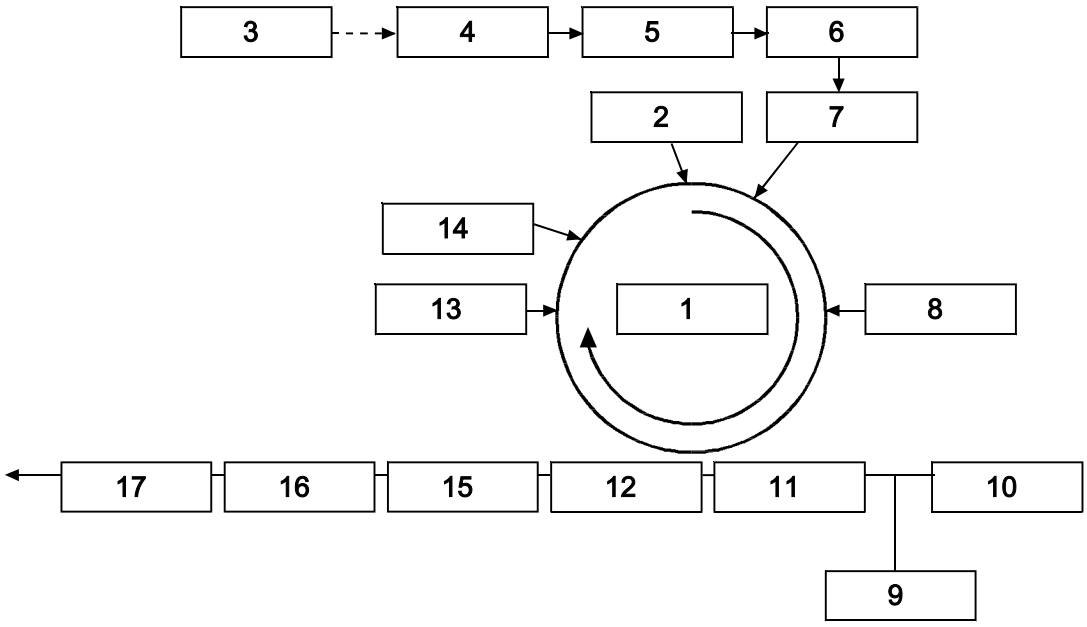
8 CROSS SECTIONAL VIEW



1. Fusing Unit
2. IR Section
3. PH Section
4. Imaging Unit
5. 2nd Drawer
6. 1st Drawer

9 COPY PROCESS



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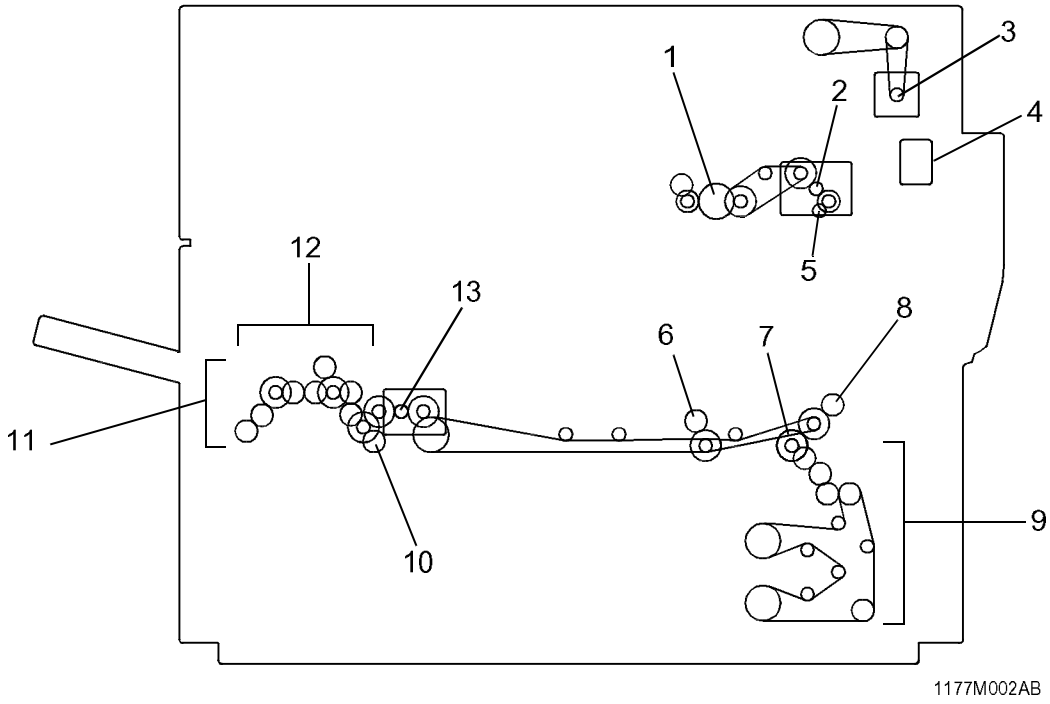
1. PC Drum
÷ Used as the medium on which a visible developed image of the original is formed.
2. Drum Charging
÷ A uniform negative DC charge is deposited across the entire surface of the PC Drum.
3. Photoelectric Conversion
÷ A CCD converts the image data represented by light reflected off the original to a corresponding electrical signal which, in turn, is output to the IR image-processing section.
4. IR Image-Processing
÷ The electrical signal is converted to an 8-bit digital image signal (A/D conversion) which, in turn, goes through appropriate correction before being output to the memory.
5. Memory
÷ The digital image signal is compressed and stored in memory. It is then output to the PH image-processing section.
6. PH Image Processing
÷ After going through corrections, the digital image signal is converted to a corresponding electrical signal (D/A conversion) that controls the intensity of the light from the laser diode.
7. Laser Exposure
÷ The laser beam strikes the surface of the PC Drum, forming an electrostatic latent image.
8. Developing
÷ Toner negatively charged in the Developer Mixing Chamber is attracted onto the electrostatic latent image changing it to a visible, developed image.
÷ An AC/DC negative bias voltage is applied to the Sleeve/Magnet Roller to prevent toner from being attracted onto those areas of the PC Drum which correspond to the background areas of the original.

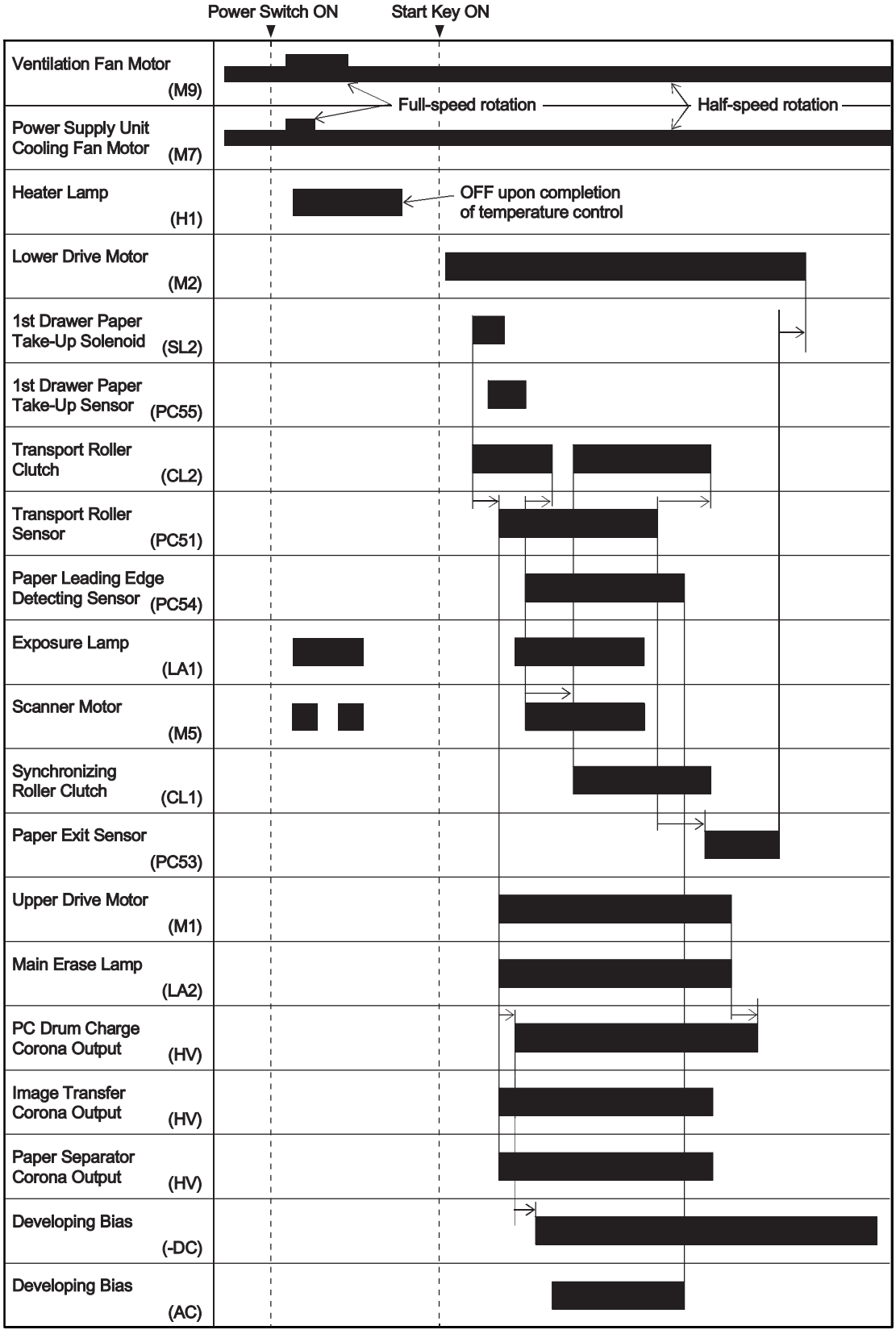
9. Paper Feeding
÷ Paper is fed from the drawer.
10. Bypass Paper Feeding
÷ Paper is fed from the Bypass Table.
11. Image Transfer
÷ A DC positive corona emission is applied to the back side of the paper, thereby attracting toner onto the surface of the paper.
12. Paper Separation
÷ An AC corona and DC negative corona emission is applied to the back side of the paper to neutralize the paper, while the PC Drum Paper Separator Fingers mechanically remove the paper from the surface of the PC Drum.
13. Cleaning
÷ Residual toner on the surface of the PC Drum is scraped off.
14. Main Erase
÷ Light is directed to the surface of the PC Drum to neutralize any surface potential remaining there after cleaning.
15. Transport
÷ The paper is fed to the Fusing Unit.
16. Fusing
÷ The developed image is permanently fused to the paper by a combination of heat and pressure applied by the Upper and Lower Fusing Rollers.
17. Exit
÷ The paper is fed out onto the Exit Tray.

10 DRIVE SYSTEM



1. PC Drum Drive
2. Upper Drive Motor M1
3. Scanner Motor
4. Toner Replenishing Motor
5. Developing Section Drive
6. Synchronizing Roller Drive
7. Paper Transport Drive
8. Manual Feed Paper Take-Up Drive
9. Paper Take-Up Drive
10. Suction Belt Drive
11. Exit Section Drive
12. Fusing Unit Section
13. Lower Drive Motor M2

11 SEQUENTIAL EXPLANATION


Power Switch ON
Start Key ON
Ventilation Fan Motor (M9)
Full-speed rotation
Half-speed rotation
Power Supply Unit Cooling Fan Motor (M7)
Heater Lamp (H1)
OFF upon completion of temperature control
Lower Drive Motor (M2)
1st Drawer Paper Take-Up Solenoid (SL2)
1st Drawer Paper Take-Up Sensor (PC55)
Transport Roller Clutch (CL2)
Transport Roller Sensor (PC51)
Paper Leading Edge Detecting Sensor (PC54)
Exposure Lamp (LA1)
Scanner Motor (M5)
Synchronizing Roller Clutch (CL1)
Paper Exit Sensor (PC53)
Upper Drive Motor (M1)
Main Erase Lamp (LA2)
PC Drum Charge Corona Output (HV)
Image Transfer Corona Output (HV)
Paper Separator Corona Output (HV)
Developing Bias (-DC)
Developing Bias (AC)

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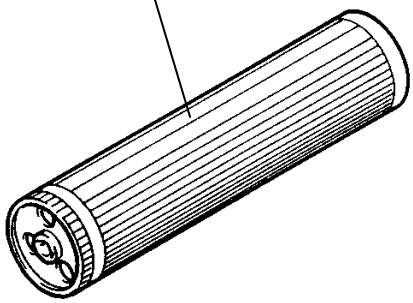
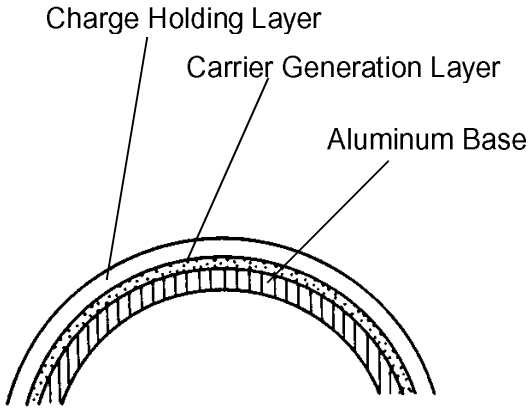
12 PC DRUM SECTION

The PC Drum consists of layers of semiconductive materials placed on an aluminum alloy base, on which an electrostatic latent image is formed.



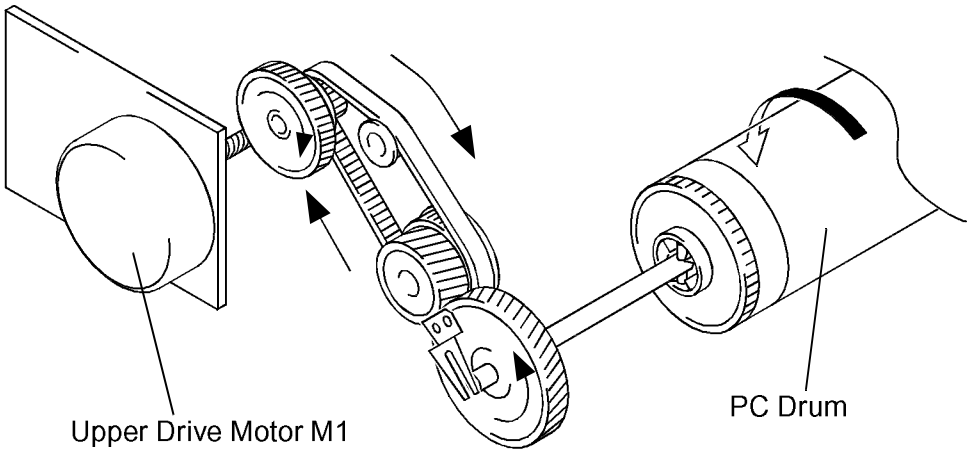
1139M006AA



1139M007AA

12-1. PC Drum Drive Mechanism

The PC Drum is turned by drive from a motor.



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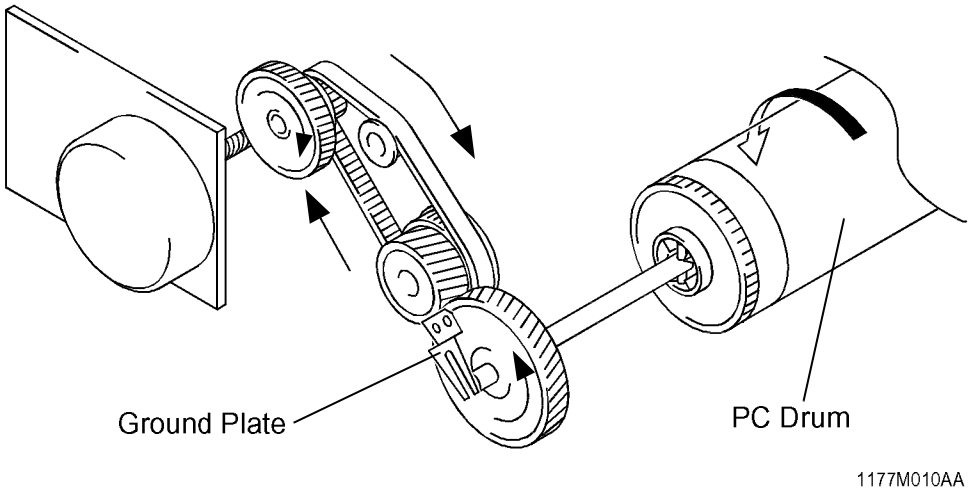
	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
M1	PWB-A PJ11A-9	L	H	2-B

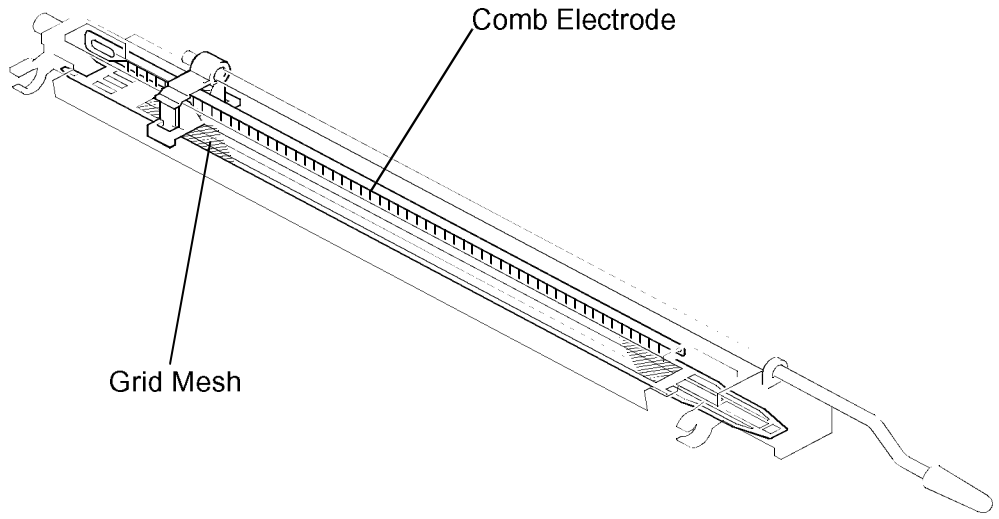
12-2. Grounding of the PC Drum

The potential on the surface of the PC Drum exposed to the light is grounded to the frame.



13 PC DRUM CHARGING SECTION

+ The PC Drum Charge Corona has a scorotron grid to deposit a charge evenly across the surface of the PC Drum.
+ The corona unit has a comb electrode that discharges only toward the grid mesh, thus minimizing the amount of ozone produced.

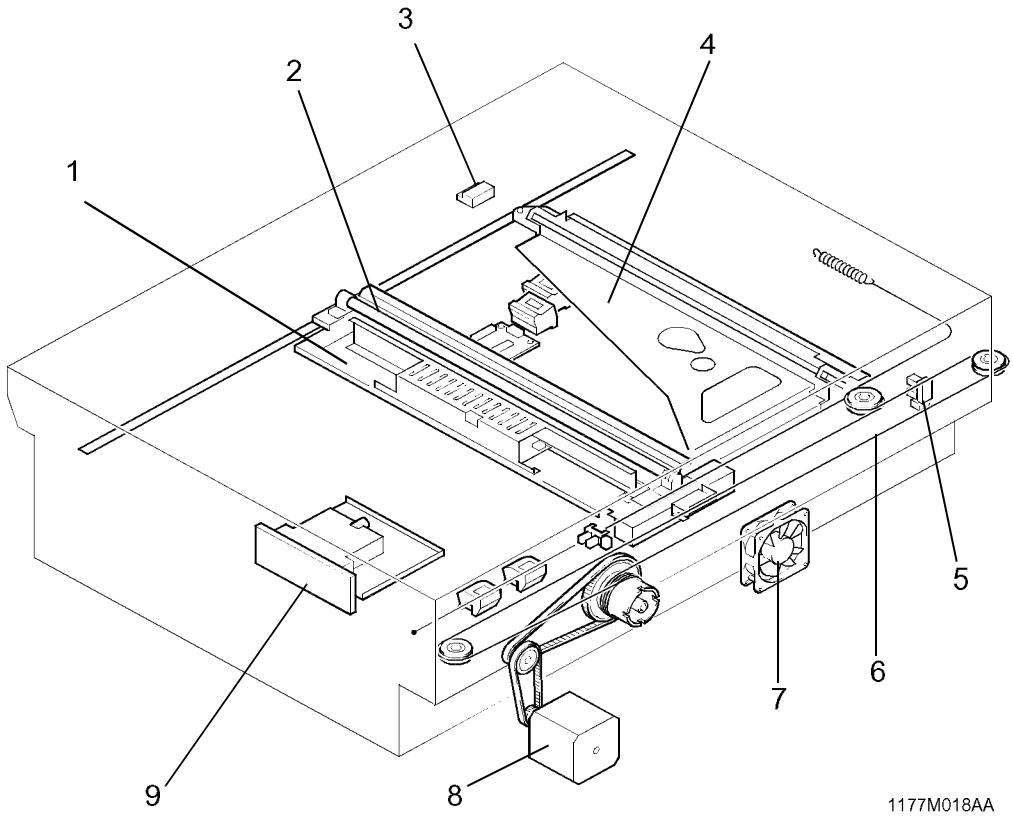


1177M008AA

	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
HV PC Drum Charger	PWB-A PJ8A-3	L	H	2-H

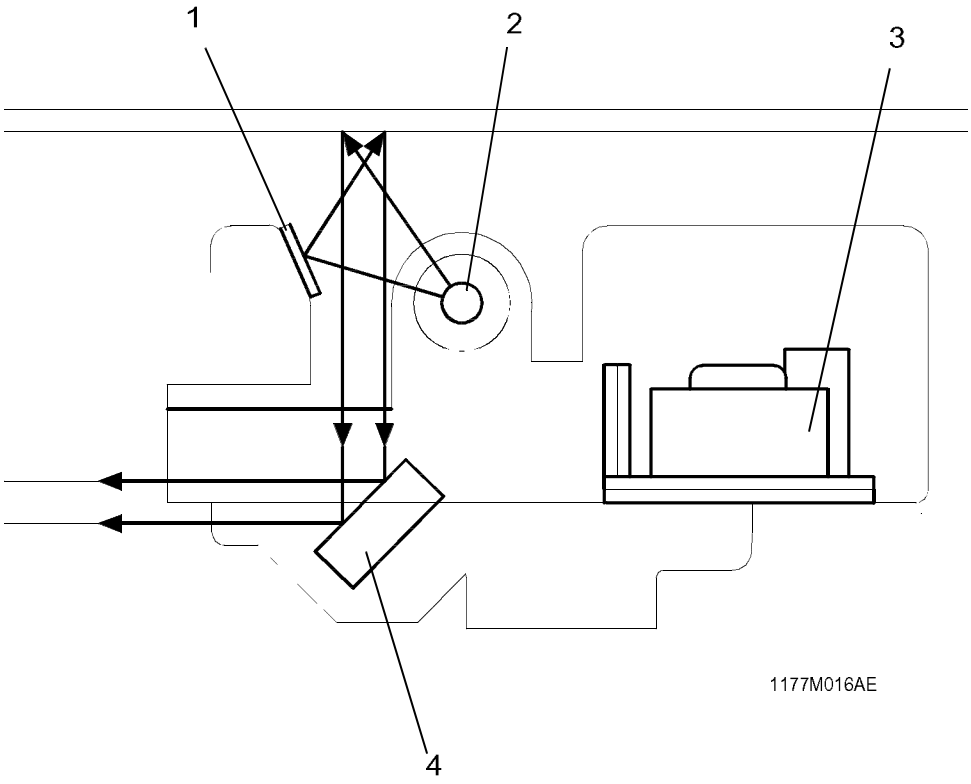
14 IR SECTION

The IR Section projects light onto the surface of the original and converts the light reflected off the original to a corresponding electrical signal.



1. Scanner
2. Exposure Lamp (LA1)
3. Size Reset Switch (S108)
4. 2nd/3rd Mirror Carriage
5. Scanner Home Sensor (PC81)
6. Scanner Drive Cable
7. Optical Section Cooling Fan Motor (M3)
8. Scanner Motor (M5)
9. CCD Assy

14-1. Exposure Components Section



1. Reflector: Reflects the light from the Exposure Lamp onto the surface of the original.
2. Exposure Lamp: Illuminates the surface of the original.
3. Inverter: Converts a DC voltage to AC voltage and turns ON the Exposure Lamp.
4. 1st Mirror: Directs the light reflected off the surface of the original over to the 2nd/3rd Mirror.

14-2. Exposure Lamp Control

- The Exposure Lamp is turned ON or OFF by the Exposure Lamp Remote signal output from the Master Board.
- It is turned ON or OFF at different timings between when the Power Switch is turned ON and when the Start Key is pressed. Details:

<When the Power Switch is turned ON>

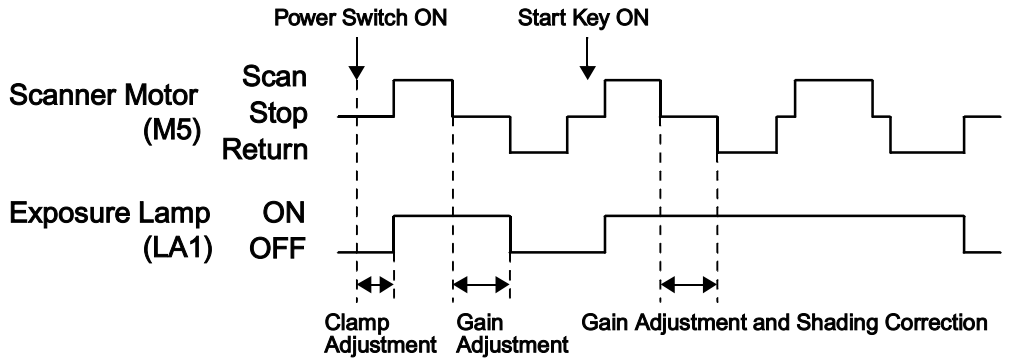
1. CCD is turned ON.
2. The clamp adjustment is made.
3. The Exposure Lamp is turned ON.
4. The Scanner moves to, and stops at, the shading position.
5. The gain adjustment is made.
6. The Exposure Lamp is turned OFF.
7. The Scanner moves to, and stops at, the home position.

<When the Start Key is pressed>

1. CCD is turned ON and the Exposure Lamp is turned ON.
2. The Scanner moves to, and stops at, the shading position.
3. The gain adjustment and shading correction are made.
4. The Scanner moves to the home position and starts scanning the original.

Clamp adjustment: Sets the minimum value of the CCD Sensor output voltage.
Gain adjustment: Sets the maximum value of the CCD Sensor output voltage.

	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
LA1	PJ11A-10	L	H	10-B



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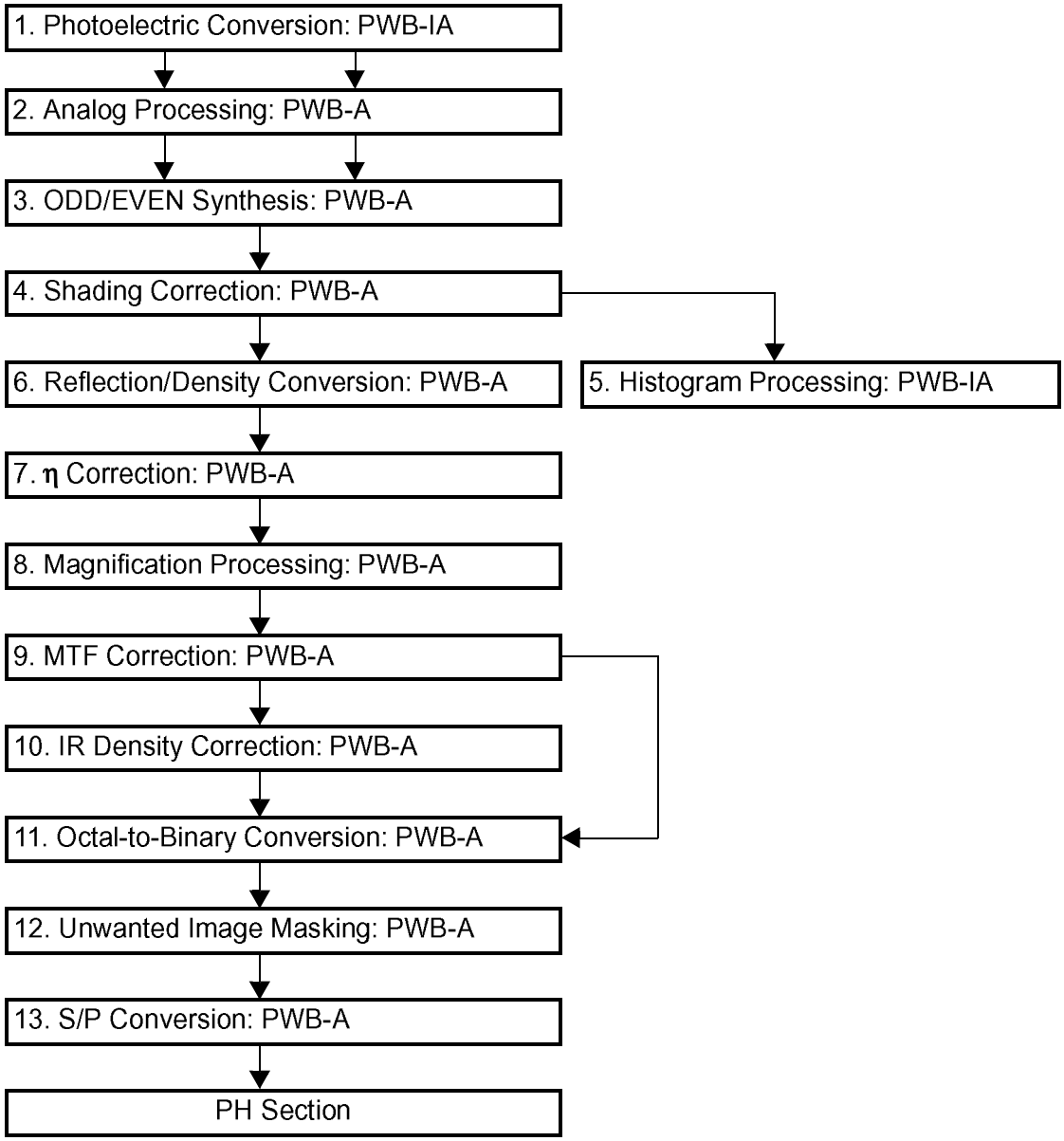
14-3. Image Processing Process


1. Photoelectric Conversion: PWB-IA
2. Analog Processing: PWB-A
3. ODD/EVEN Synthesis: PWB-A
4. Shading Correction: PWB-A
5. Histogram Processing: PWB-IA
6. Reflection/Density Conversion: PWB-A
7. η Correction: PWB-A
8. Magnification Processing: PWB-A
9. MTF Correction: PWB-A
10. IR Density Correction: PWB-A
11. Octal-to-Binary Conversion: PWB-A
12. Unwanted Image Masking: PWB-A
13. S/P Conversion: PWB-A
PH Section

1. Photoelectric Conversion (CCD Sensor)
÷ The Exposure Lamp illuminates the original and the light reflected off the original passes through the mirrors and lens to reach the CCD Sensor which, in turn, converts the optical data to corresponding analog electrical signals.
2. Analog Processing
÷ This block removes noise from the analog signals (ODD/EVEN) output by the CCD Sensor, then converts the result to 8-bit digital image signals (analog-to-digital conversion).
3. ODD/EVEN Synthesis
÷ This block synthesizes the ODD and EVEN image signals transmitted over two different channels into a single string of image-data signal.
4. Shading Correction
÷ Corrects errors in the image data introduced by factors such as variations in sensitivity among CCD Sensor pixels, uneven Exposure Lamp light distribution, and uneven lens shading.
5. Histogram Processing
÷ Generates a histogram of the image density data for use during AE/gain adjustment.
6. Reflection/Density Conversion
÷ Converts the image data to image density data that has a linear relationship to the density of the original.
7. η Correction
÷ Adjusts data so that the copied image's gradation characteristics will be proportional to the gradation characteristics of the original.
8. Magnification Processing
÷ Processes the image data as necessary according to the zoom setting (Enlarge/Reduce) made on the control panel.
9. MTF Correction
÷ Reduces the image noise contained in the image density data, discriminates the text part from edges and dots, smoothes the image, emphasizes and sharpens the outlines of characters and lines, thereby enhancing overall image reproduction.
10. IR Density Correction
÷ Corrects the gradation of the image density data in accordance with the copy image density setting made on the control panel, thereby ensuring reproduction of the best possible image density/quality.
11. Octal-to-Binary Conversion
÷ Converts the 8-bit image density data to corresponding binary data.
12. Unwanted Image Masking
÷ Sets the image data on the effective area according to the original size, paper size, frame masking setting, and zoom ratio, thus erasing the image data on the ineffective area outside the effective area.
13. S/P Conversion
÷ Converts the binary image density data to a corresponding parallel signal and transmits it to the PH.

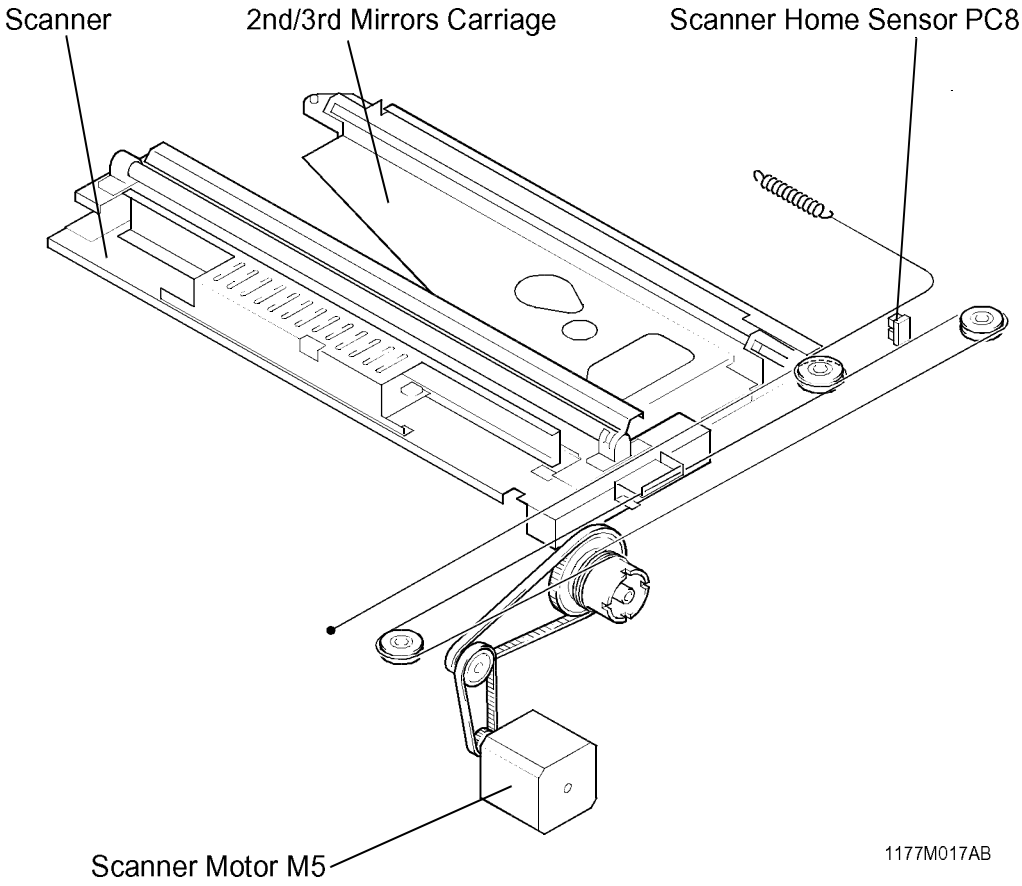
14-4. Scanner and Mirrors Carriage Movement Mechanism

(1) Scanner Movement Mechanism

- The Scanner is driven by the Scanner Motor at a speed appropriate to the set zoom ratio with reference to the speed in the full size mode.
- The Scanner is detected at its home position by the Scanner Home Sensor.

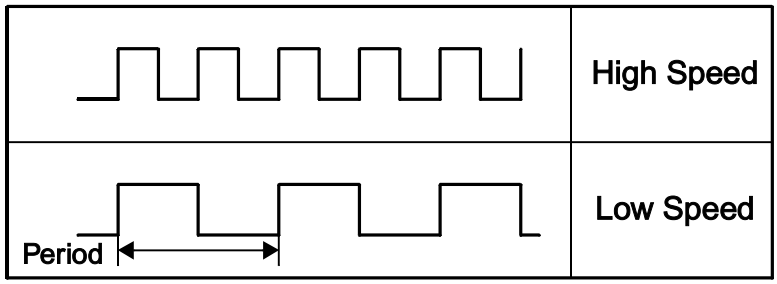
(2) 2nd/3rd Mirrors Carriage Movement Mechanism

The 2nd/3rd Mirrors Carriage moves at a speed half that of the Scanner, thereby keeping constant the optical path length between the original and CCD Sensor.



14-5. Scanner Motor Drive Control

+ The speed at which the Scanner is moved is controlled by varying the period of the motor drive pulse that is timed with the reference clock.



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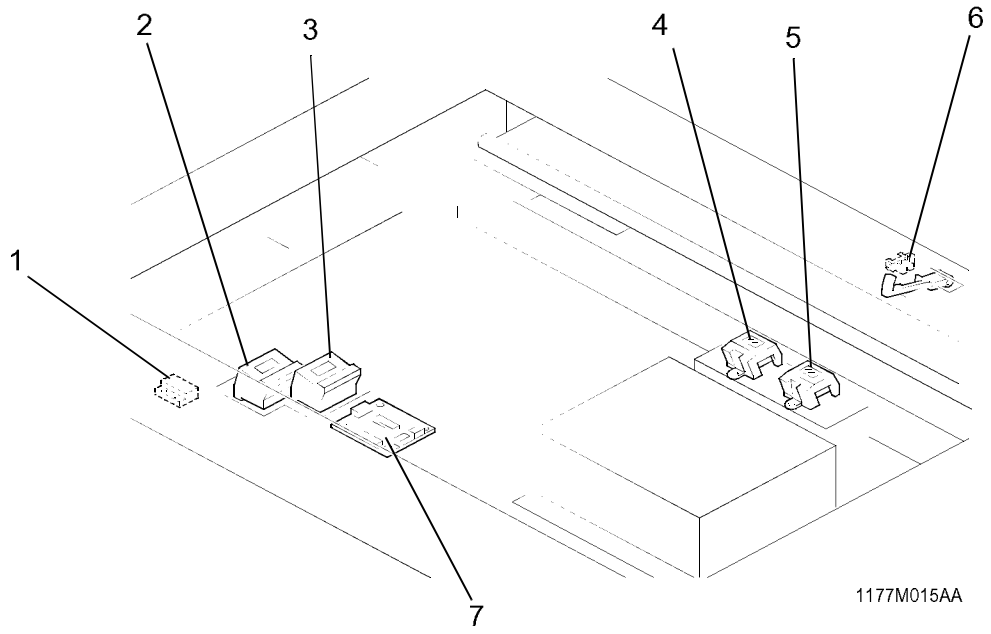
+ The distance over which the Scanner travels is controlled by the number of motor drive pulses that correspond to each paper size and zoom ratio.

	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
M5	PWB-F PJ3F-1~4	Pulse Output		15-B

15 Original Size Detecting Section

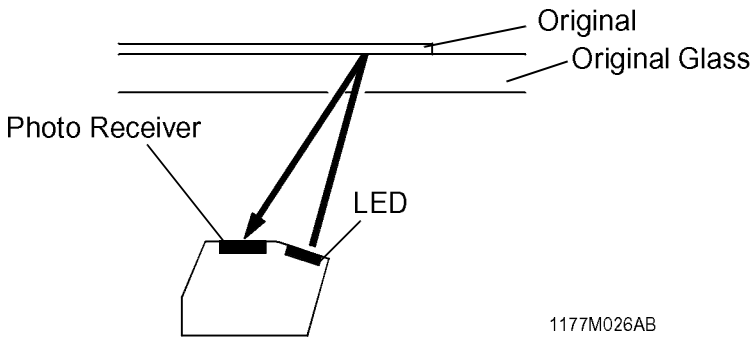
The original size detecting sensors fixed in the optical section are used to determine the size of the original in the Auto Paper or Auto Size mode.



1. Size Reset Switch (S108)
2. Original Size Detecting Sensor CD2 (PC116)
3. Original Size Detecting Sensor CD1 (PC114)
4. Original Size Detecting Sensor FD2 (PC113)
5. Original Size Detecting Sensor FD3 (PC115)
6. Original Cover Detecting Sensor (PC111)
7. Original Size Detecting Board (UN2)

15-1. Original Size Detecting Operation

Each photo receiver of the original size detecting sensors responds to the light, which is emitted by the corresponding LED and reflected off the original, of a given level of intensity. If the intensity of the reflected light exceeds the given level, the size detecting board determines that there is an original.

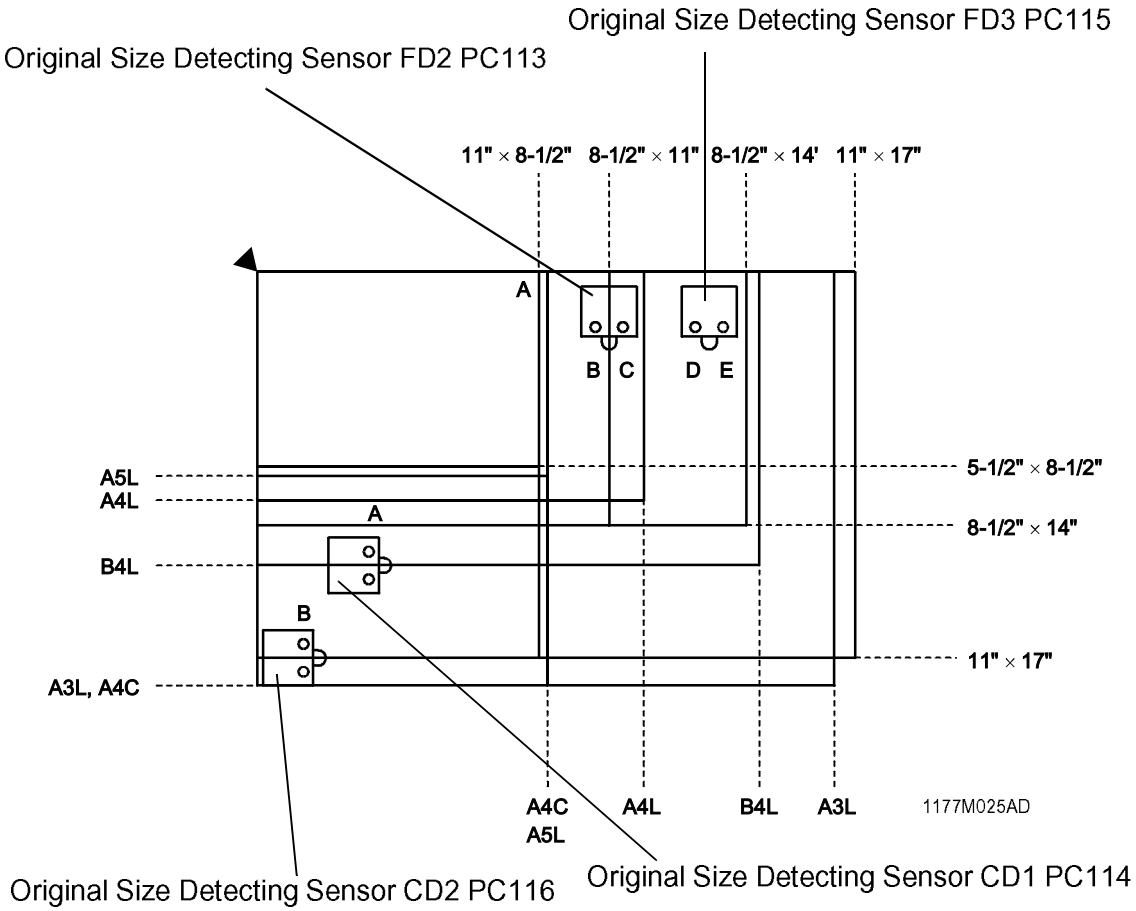


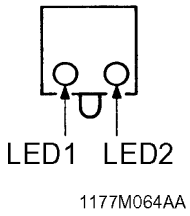
15-2. Original Size Detecting Sensors Locations

÷ The original size detecting sensors are located in the following positions to enable them to detect different sizes of the original.

Sensors / Areas	CD1 (PC114)	CD2 (PC116)	FD2 (PC113)	FD3 (PC115)
Metric Areas	■	❍	■	❍
Inch Areas	■	❍	■	❍
Mixed inch/metric Areas	■	■	■	■

■: Standard ❍: Optional





15-3. Original Size Detection

The Original Size Detecting Board determines the correct original size based on the combination of Size Detecting Sensors that are detecting an original.

Metric Area

Size Determined	FD2		FD3		CD1		CD2
	LED1	LED2	LED1	LED2	LED1	LED2	LED1
A3L	■	■	■	■	■	■	■
B4L	■	■	■	■	❍	■	❍
A4L	■	■	❍	❍	❍	❍	❍
A4C	❍	❍	❍	❍	■	■	■
A5L	❍	❍	❍	❍	❍	❍	❍

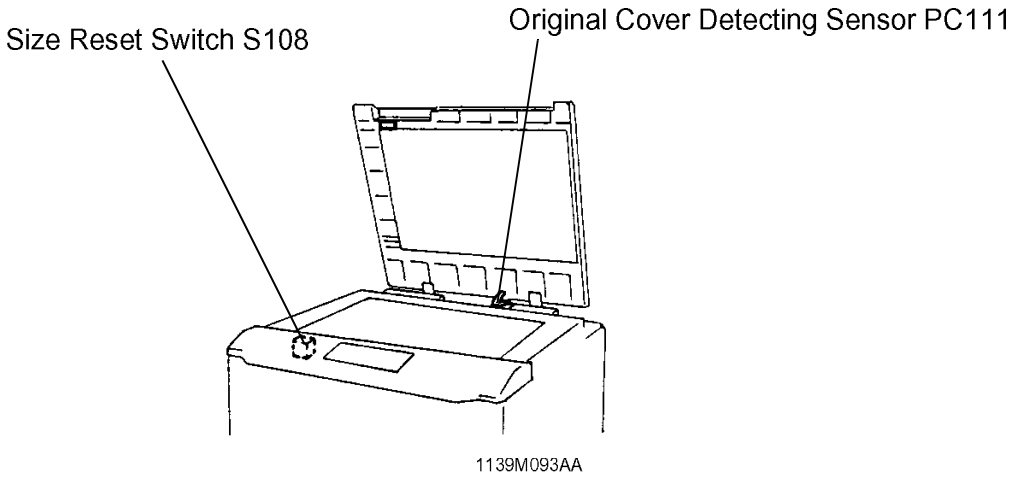
Inch Area

Size Determined	FD2		FD3		CD1		CD2
	LED1	LED2	LED1	LED2	LED1	LED2	LED1
11” × 17”	■	■	■	■	■	■	❍
8-1/2” × 14”	■	■	■	■	❍	❍	❍
8-1/2” × 11”	❍	■	❍	❍	❍	❍	❍
11” × 8-1/2”	❍	❍	❍	❍	■	■	❍
5-1/2” × 8-1/2”	❍	❍	❍	❍	❍	❍	❍

■: Original Present ❍: Original Not Present

15-4. Original Size Detection Timing

- ÷ Takes size readings: When the Original Cover is raised to an angle of 15° or more (Original Cover Detecting Sensor is unblocked).
- ÷ Affirms size readings: When the Original Cover is lowered to an angle of 15° or less (Original Cover Detecting Sensor is blocked) and the Size Reset Switch is actuated. Or, when the Start key is pressed with the Original Cover Detecting Sensor in the deactivated state.
- ÷ Resets size readings: When the Original Cover is raised and the Size Reset Switch is deactuated.

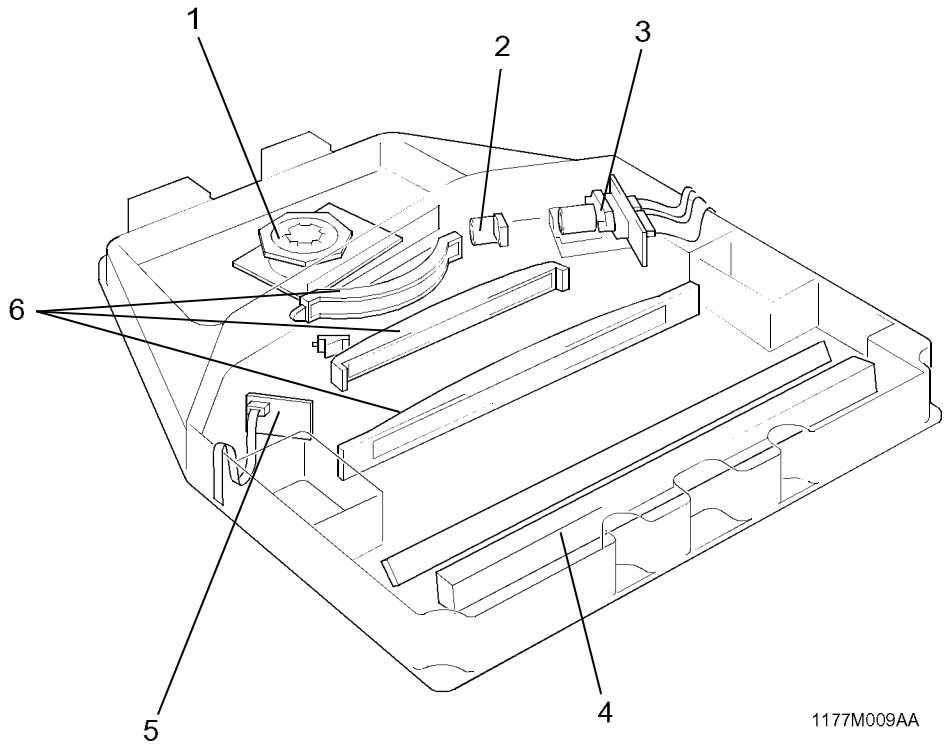


	CONTROL SIGNAL	Blocked	Unblocked	WIRING DIAGRAM
PC111	PWB-A PJ13A-12B	L	H	11-A

	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
S108	PWB-A PJ23A-13	H	L	8-B

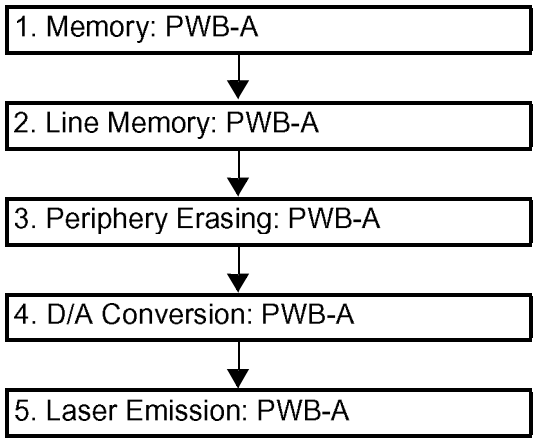
16 PH SECTION

Image data sent from the memory section is corrected and, based on the corrected data, a laser beam is projected onto the surface of the PC Drum to form a corresponding latent image.



1. Polygon Motor
2. Cylindrical Lens
3. LD Board (PWB-B)
4. Return Mirror
5. SOS Sensor Board (PWB-C)
6. Lenses

16-1. PH Image Processing Process



1. Memory
+ Temporarily stores the image density data to ensure effective image data transfer from the IR to PH.
2. Line Memory
+ Corrects the difference in data transfer frequency.
3. Periphery Erasing
+ Erases data in the invalid image areas to prevent the laser beam from striking those unnecessary areas.
4. D/A Conversion
+ Converts digital laser intensity data to a corresponding analog voltage.
5. Laser Emission
+ Controls the laser intensity according to the laser intensity voltage data.

16-2. Laser Exposure Process

Start key ON

↓

Laser Diode is turned ON.

↓

The laser beam strikes the SOS Sensor Board and generates an SOS signal.

↓

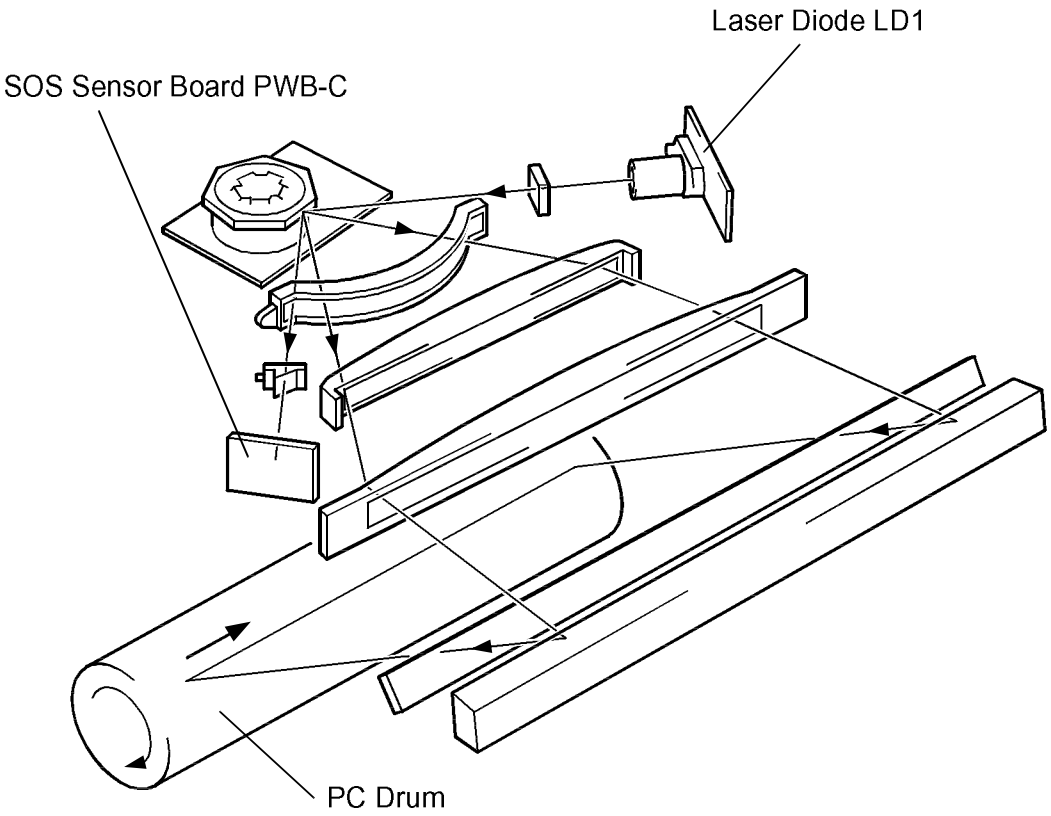
The SOS signal sets a uniform laser-ON timing for each main scanning line.

↓

The Master Board generates signals that indicate the laser emission area in the main and sub scanning directions.

↓

The laser light strikes the surface of the PC Drum to form an electrostatic latent image.



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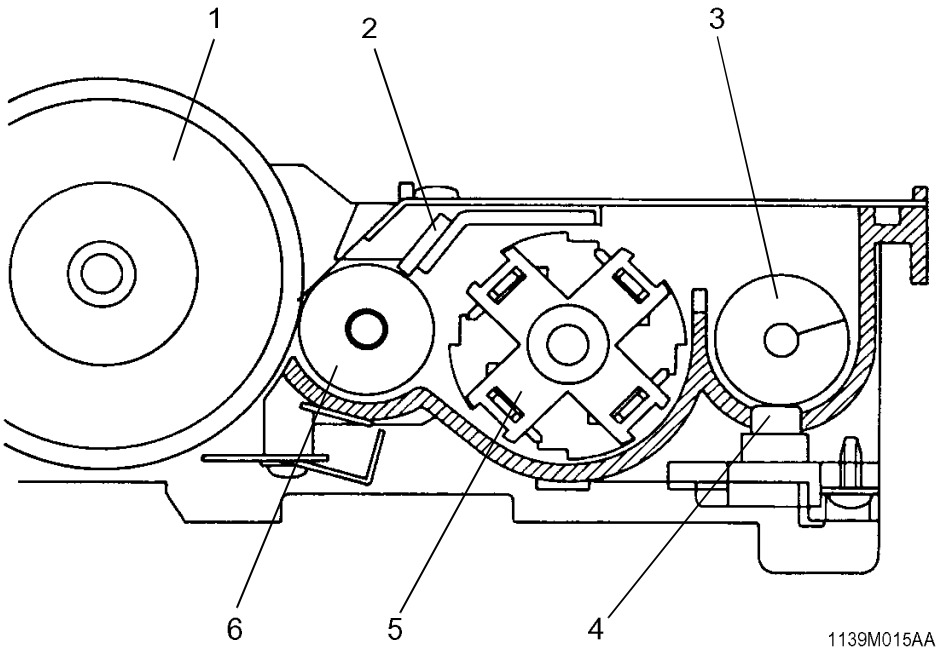
17 DEVELOPING UNIT SECTION

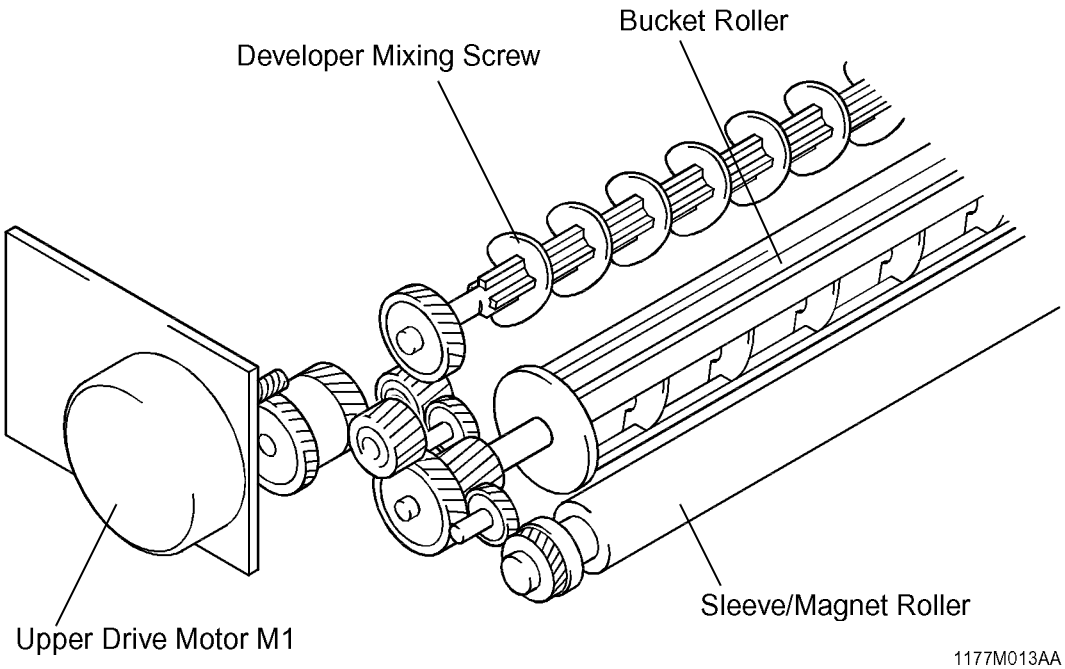
The Developing Unit agitates and triboelectrically charges toner so that it is attracted to the electrostatic latent image formed on the surface of the PC Drum, changing the image to a visible, developed one.



1. PC Drum
2. Doctor Blade
3. Developer Mixing Screw
4. ATDC Sensor (UN3)
5. Bucket Roller
6. Sleeve/Magnet Roller

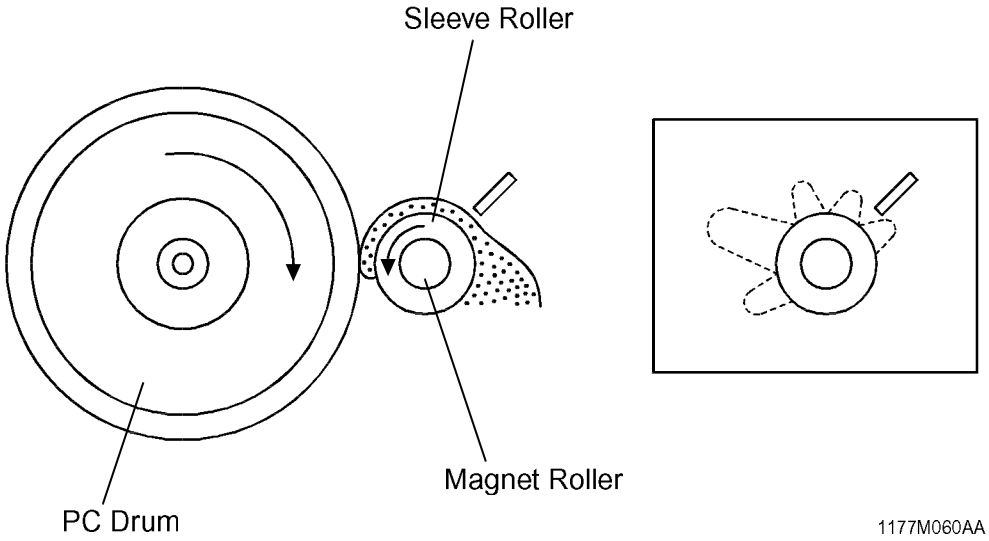
17-1. Developing Unit Drive Mechanism

The rollers and screws are driven through a gear train from the motor.



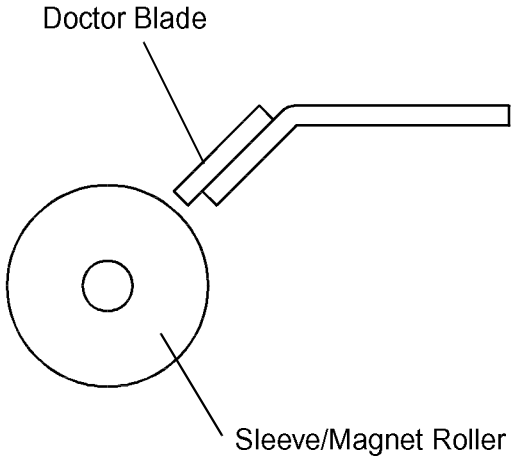
17-2. Sleeve/Magnet Roller

- The Sleeve/Magnet Roller, which consists of an outer sleeve roller and an inner magnet roller, conveys developer to the point of development.
- The magnetic force of the magnet roller at the point of development is the strongest so that the developer brush stands straight up to deliver the greatest amount of toner to the point of development.



17-3. Doctor Blade

The Doctor Blade controls the height of the developer brush, ensuring that the developer on the Sleeve/Magnet Roller is at a uniform height.



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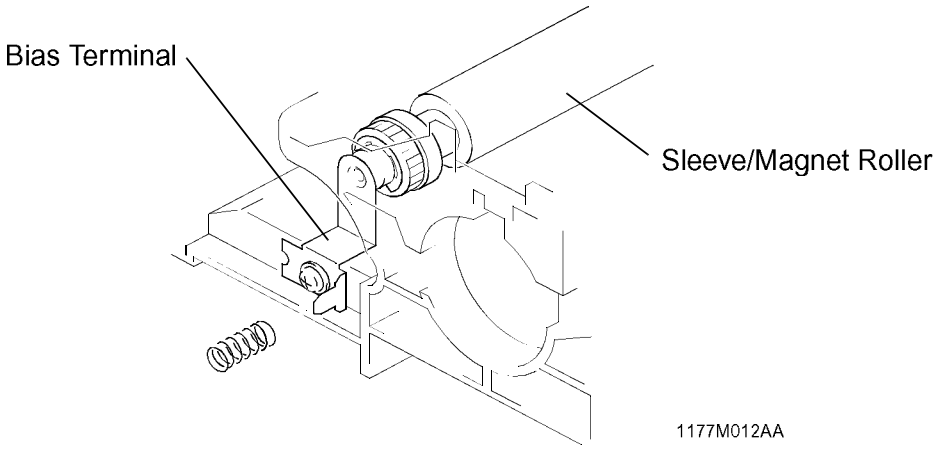
17-4. Developing Bias

- A developing bias voltage (Vb) is applied to the sleeve roller to prevent a foggy background on the copy.
- The amount of toner attracted onto the surface of the PC Drum depends on how much lower the PC Drum surface potential (Vi) is than Vb (potential difference).

When the potential difference is large, a greater amount of toner is attracted.
When the potential difference is small, a smaller amount of toner is attracted.



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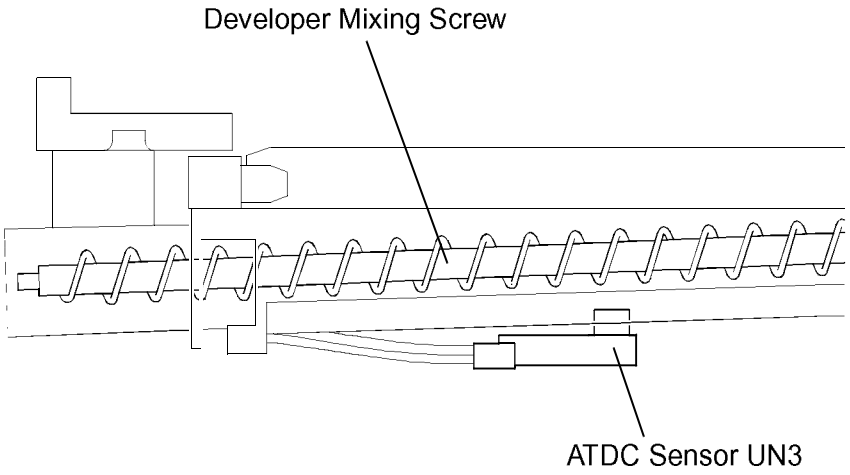
	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
Developing Bias (AC)	PWB-A PJ8A-5	L	H	2-H
Developing Bias (DC)	PWB-A PJ8A-4	L	H	2-H

17-5. ATDC Sensor

The ATDC Sensor detects the toner-to-carrier ratio (T/C) of the developer in the Developer Mixing Chamber.

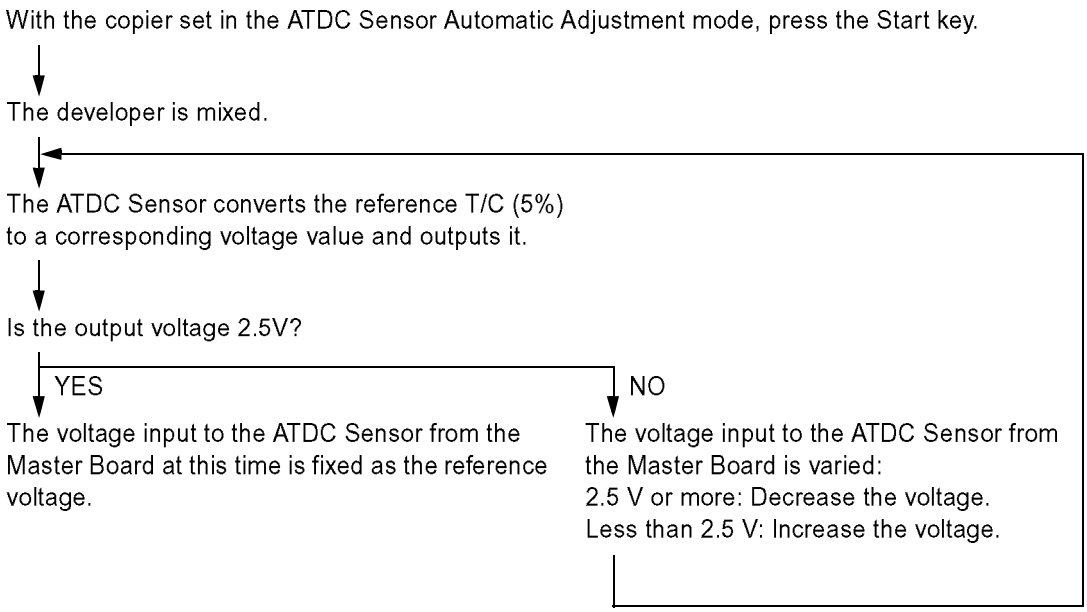


1177M023AB

	CONTROL SIGNAL	T/C	Reference Voltage	WIRING DIAGRAM
UN3	PWB-A PJ10A-6	5%	2.5V	1-D

(1) ATDC Sensor Automatic Adjustment

The reference value for the ATDC Sensor is automatically adjusted as detailed below using the ATDC Sensor Automatic Adjustment mode.


With the copier set in the ATDC Sensor Automatic Adjustment mode, press the Start key.
The developer is mixed.
The ATDC Sensor converts the reference T/C (5%) to a corresponding voltage value and outputs it.
Is the output voltage 2.5V?
YES
NO
The voltage input to the ATDC Sensor from the Master Board at this time is fixed as the reference voltage.
The voltage input to the ATDC Sensor from the Master Board is varied:
2.5 V or more: Decrease the voltage.
Less than 2.5 V: Increase the voltage.

NOTE

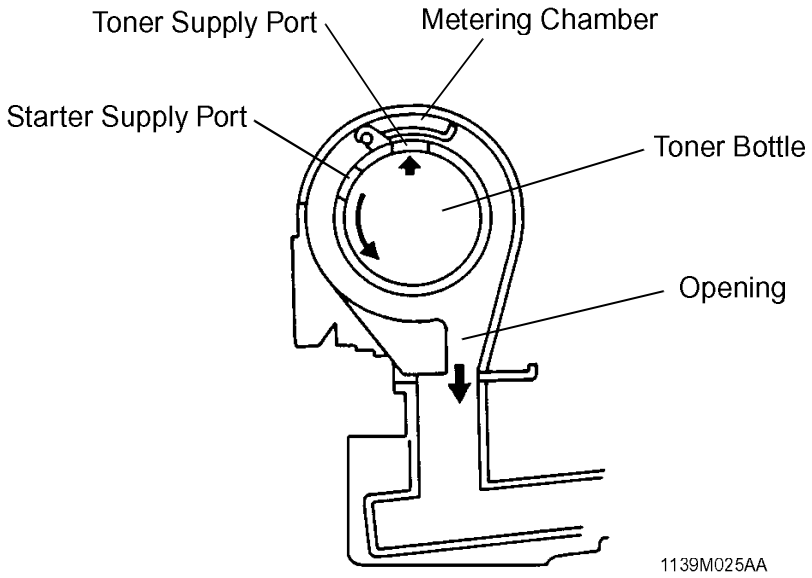
If the automatic adjustment mode is run at a time when the starter has not been changed, it can result in a wrong T/C reference value being set by the copier. Avoid casual use of this mode.

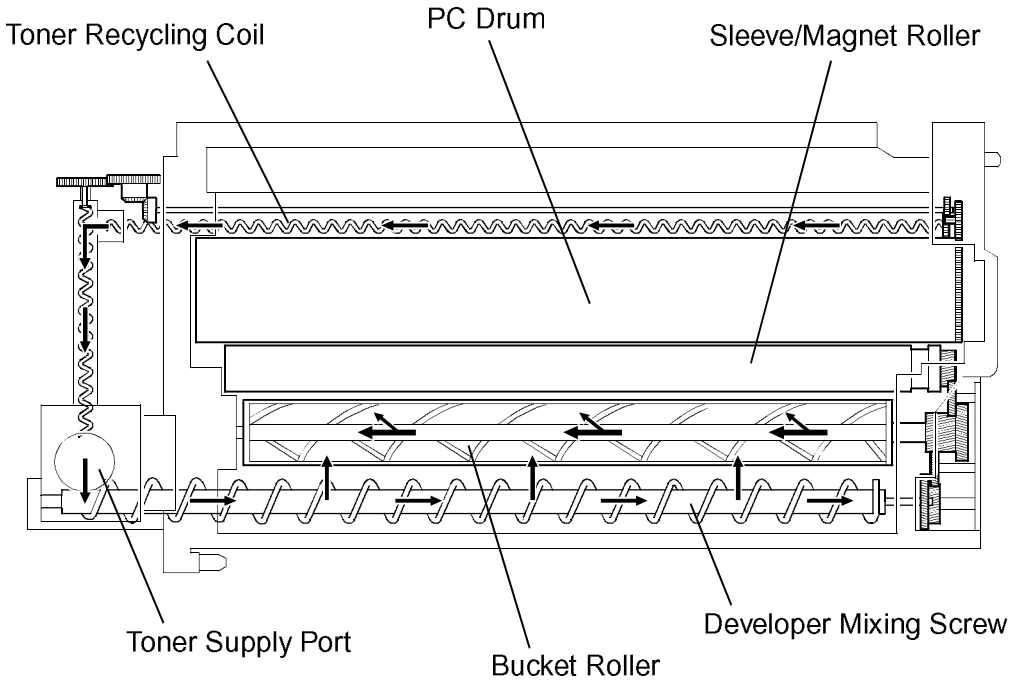
If the setting value has been cleared because of the RAM board being replaced, return the value set in the Tech. Rep. mode to the original one before the board was replaced.

17-6. Toner Replenishing Mechanism

Toner is supplied from the Toner Bottle to the Sleeve/Magnet Roller.

1. The Toner Replenishing Motor turns the Toner Bottle.
2. A metering chamber provide at the toner supply port regulates the amount of toner to be supplied.
3. Toner supplied through the toner supply port is conveyed onto the Sleeve/Magnet Roller.





17-7. Toner Replenishing Control

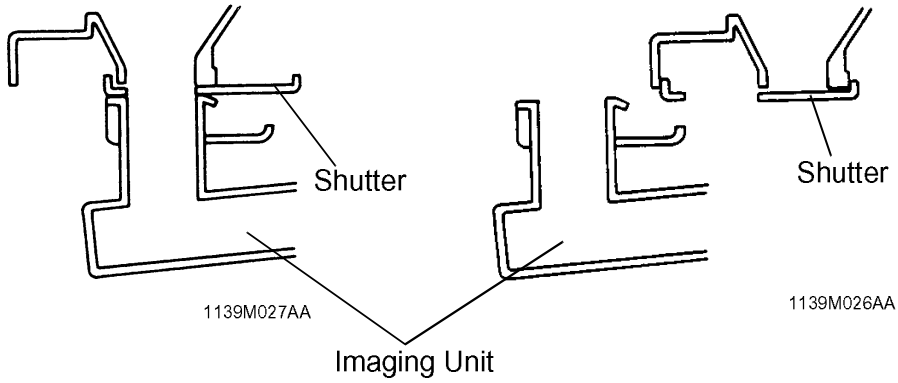
1. The ATDC Sensor detects the toner-to-carrier ratio of the developer for each copy cycle.
2. It samples the ratio 16 times. If eight or more readings out of the total 16 are lower than the preset T/C, a toner replenishing signal is generated.
3. One Toner Replenishing signal turns the Toner Replenishing Motor for about 5 seconds.

✽ The readings taken while the Toner Replenishing Motor is turning are ignored. That is, in a multi-copy cycle, the ATDC Sensor may take readings as the next copy cycle is started while the motor is turning; but, those readings are ignored.

17-8. Toner Supply Hole Covering/Uncovering Mechanism

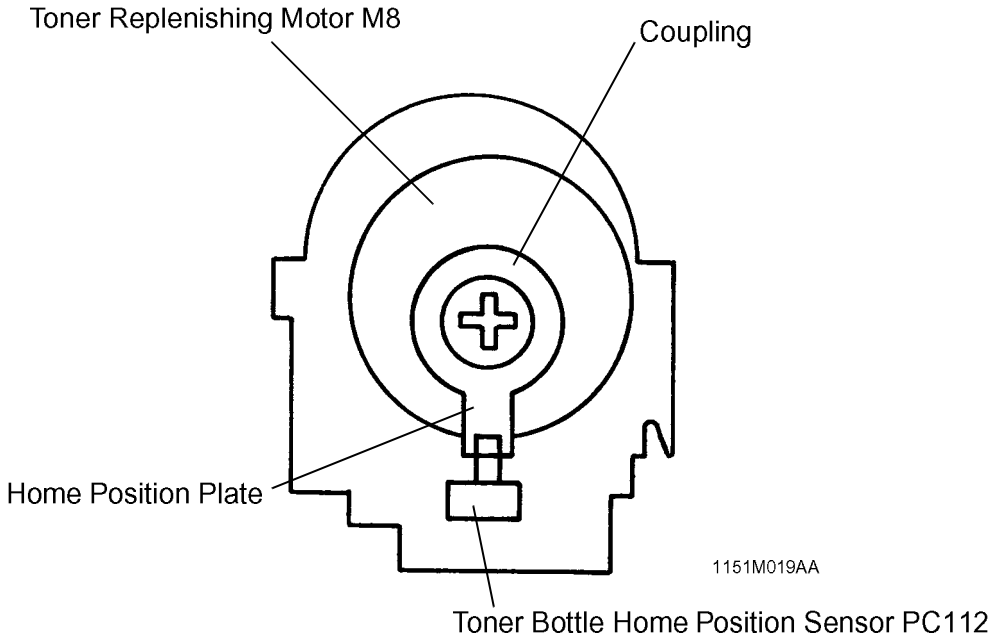
The Toner Supply Hole is covered to prevent toner from dropping into the inside of the copier when the Imaging Unit is slid out of the copier.

Imaging Unit in Position in Copier **Imaging Unit Out of Copier**



17-9. Toner Bottle Home Position Detection Mechanism

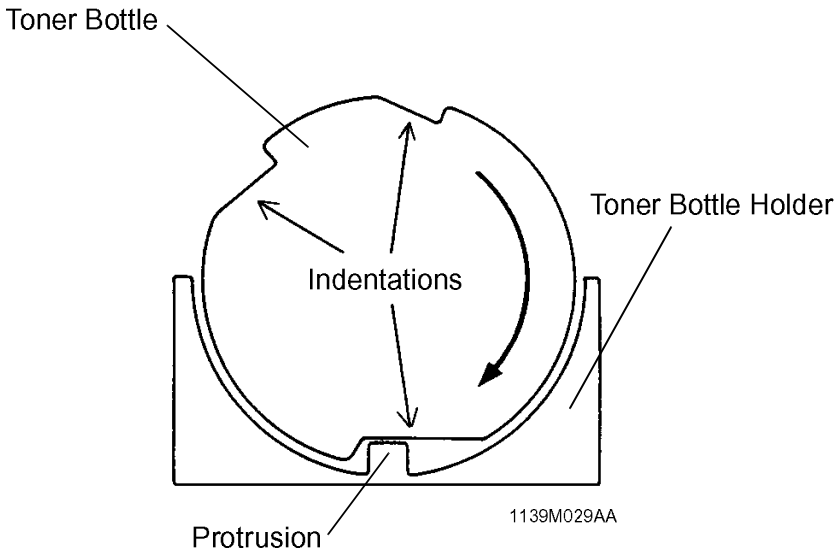
The Toner Bottle is detected at its home position by a home position detection sensor. When the Toner Bottle is at the home position (stationary), its toner supply port should face up.



	CONTROL SIGNAL	Blocked	Unblocked	WIRING DIAGRAM
PC112	PWB-A PJ13A-9B	L	H	2-C

17-10. Toner Bottle Vibration Mechanism

When the indentations of the Toner Bottle move past the protrusion in the Toner Bottle Holder, the Toner Bottle is vibrated to prevent some of the toner from remaining unconsumed in the bottle.

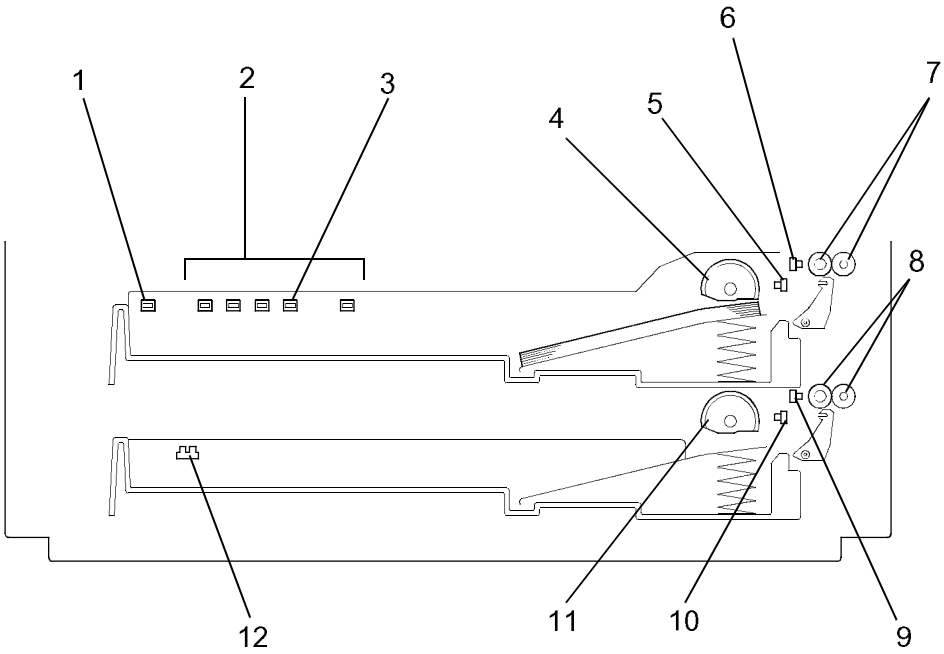


17-11. Toner Empty Detection

- The ATDC Sensor detects a toner-empty condition.
- The ATDC Sensor takes T/C readings and, when the number of readings that are lower than the reference T/C exceeds a predetermined level, the copier determines that toner is empty.

Reference T/C (%)	No. of Readings (Copies)
5.0	37

18 PAPER TAKE-UP/FEED SECTION

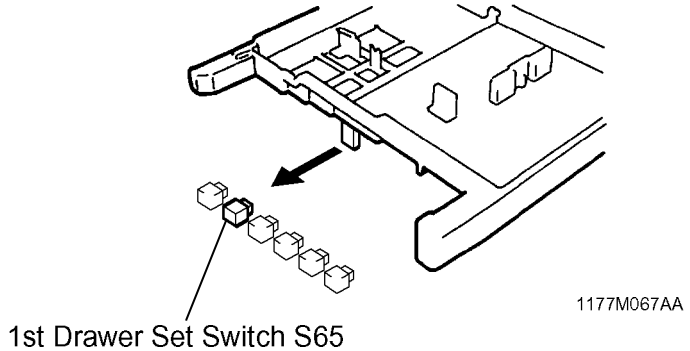


1177M022AB

1. Inch/Metric Switch S66
2. Paper Size Detecting Switch 1~4 S61~S64
3. 1st Drawer Set Switch S65
4. 1st Drawer Paper Take-Up Roll
5. 1st Drawer Paper Empty Sensor PC101
6. 1st Drawer Paper Take-Up Sensor PC55
7. Vertical Transport Rollers 1
8. Vertical Transport Rollers 2
9. 2nd Drawer Paper Take-Up Sensor PC56
10. 2nd Drawer Paper Empty Sensor PC102
11. 2nd Drawer Paper Take-Up Roll
12. 2nd Drawer Set Sensor PC69

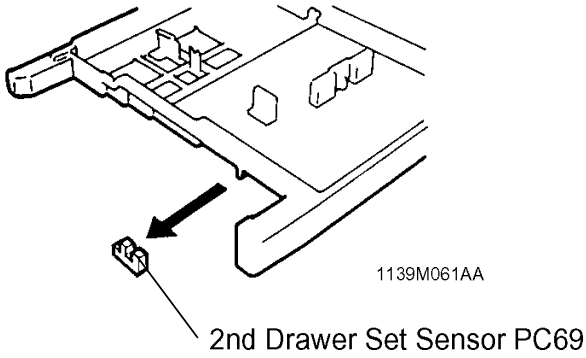
18-1. Drawer In Position Detection

When the 1st drawer is slid into the copier, it actuates the switch, informing the copier that the drawer has been slid into position.



	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
S65	PWB-A PJ15A-11	L	H	11-D

When the 2nd drawer is slid into the copier, the light blocking plate blocks the Set Sensor. The copier then knows that the drawer has been slid into position.



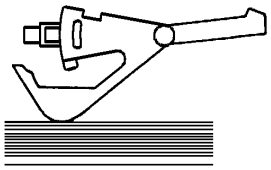
	CONTROL SIGNAL	Blocked	Unblocked	WIRING DIAGRAM
PC69	PWB-A PJ2A-2	L	H	11-E

18-2. Paper Empty Detection Mechanism

The Paper Empty Sensor detects a paper-empty condition in the drawer.

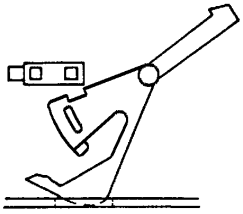
Paper Present

PC101,102: Blocked



Paper not Present

PC101,102: Unblocked



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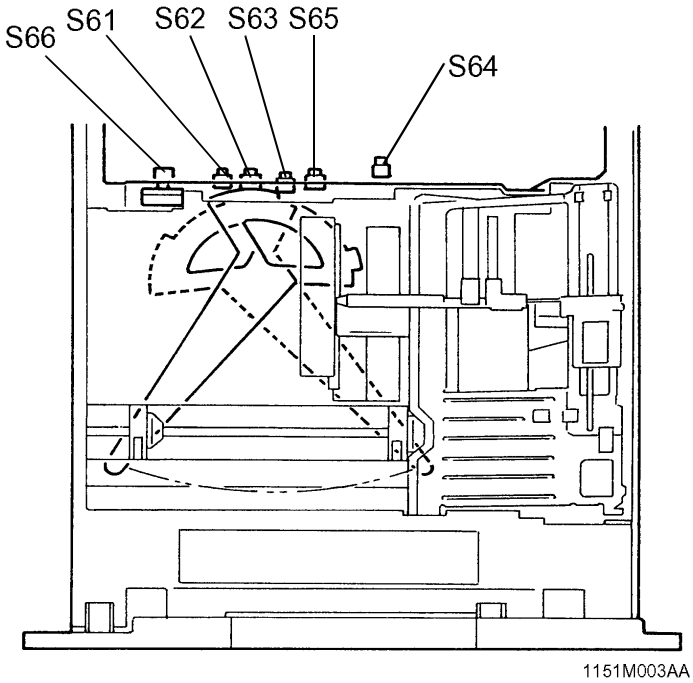
PC101: 1st Drawer Paper Empty Sensor
PC102: 2nd Drawer Paper Empty Sensor

	CONTROL SIGNAL	Blocked	Unblocked	WIRING DIAGRAM
PC101	PWB-A PJ4A-6	L	H	11-E
PC102	PWB-A PJ3A-4	L	H	11-F

18-3. Universal Tray Paper Size Detection Mechanism

- Both the width (in the crosswise direction) and length (in the feeding direction) of the paper are detected and the copier CPU determines the paper size based on the combination of the two readings.
- If the drawer is equipped with an inch/metric selector switch, it can be used to select the appropriate paper type (inch or metric).



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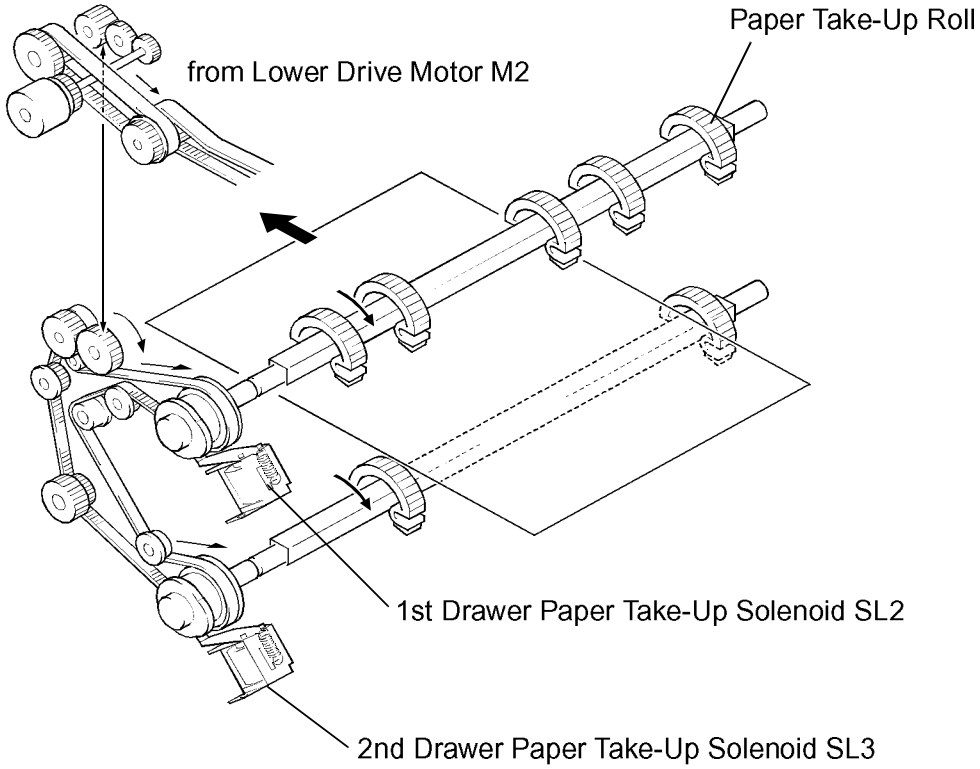
S61: Paper Size Detecting Switch 1
S62: Paper Size Detecting Switch 2
S63: Paper Size Detecting Switch 3
S64: Paper Size Detecting Switch 4
S65:1st Drawer Set Switch
S66: Inch/Metric Switch

Metric Area		Inch Area		Paper Size Detecting Switch			
Inch/Metric Switch S66				FD			CD
Metric	Inch	Metric	Inch	S61	S62	S63	S65
A3L		A3L		ON	ON	ON	OFF
B4L				ON	ON	OFF	OFF
FLS		FLS		ON	OFF	OFF	OFF
A4L		A4L		OFF	OFF	OFF	OFF
B5L				OFF	OFF	ON	OFF
A5L		A5L		OFF	ON	ON	OFF
A4C		A4C		OFF	ON	ON	ON
B5C				OFF	ON	OFF	OFF
	11" × 17"		11" × 17"	ON	ON	ON	ON
			11" × 14"	ON	ON	OFF	ON
	8-1/2" × 14"		8-1/2" × 14"	ON	ON	OFF	OFF
	8-1/2" × 11"		8-1/2" × 11"	OFF	OFF	OFF	OFF
			11" × 8-1/2"	OFF	ON	ON	ON
	5-1/2" × 8-1/2"		5-1/2" × 8-1/2"	OFF	ON	ON	OFF

	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
S61	PWB-A PJ15A-1	L	H	11-C
S62	PWB-A PJ15A-3	L	H	11-C
S63	PWB-A PJ15A-6	L	H	11-D
S64	PWB-A PJ15A-9	L	H	11-D
S65	PWB-A PJ15A-11	L	H	11-D
S66	PWB-A PJ2A-4	L	H	11-E

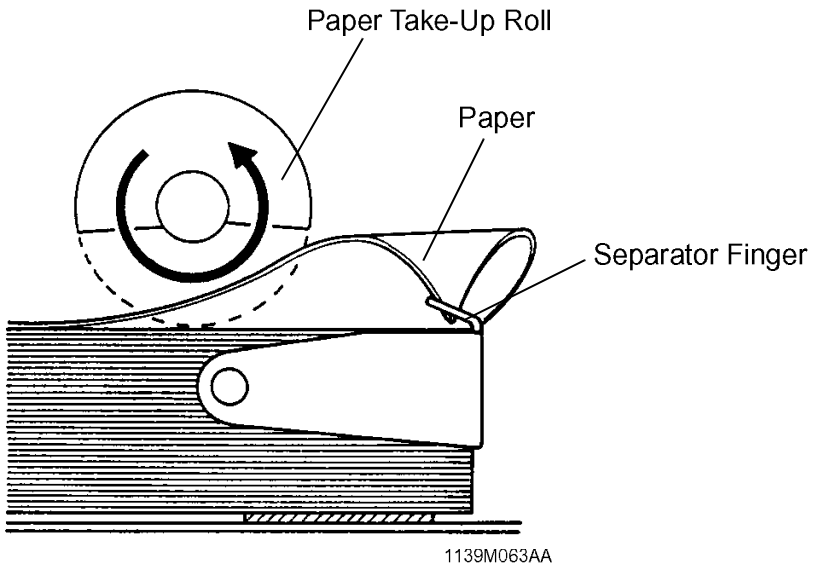
18-4. Paper Take-Up Mechanism

Drive for the paper take-up sequence is transmitted via the Paper Take-Up Solenoid from a motor.


Paper Take-Up Roll
from Lower Drive Motor M2
1st Drawer Paper Take-Up Solenoid SL2
2nd Drawer Paper Take-Up Solenoid SL3
1177M024AA

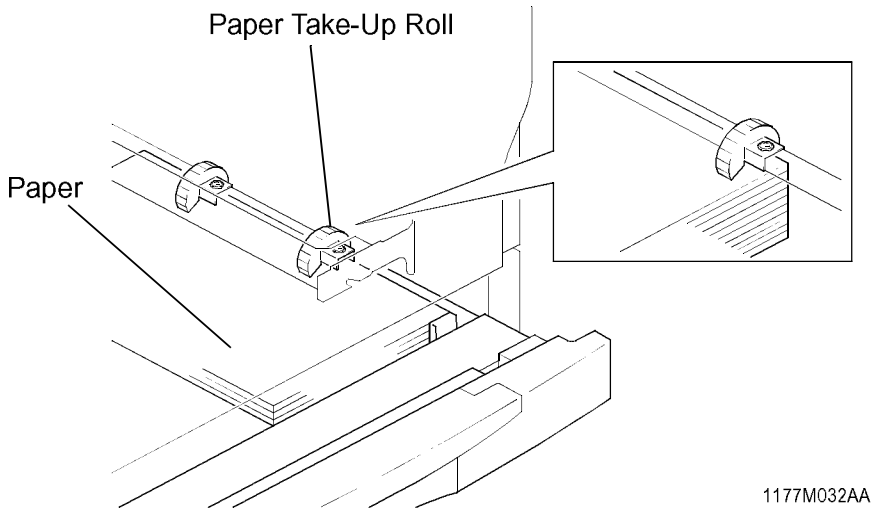
(1) Paper Separating Mechanism

A loop is formed in the paper between the Separator Fingers and the Paper Take-Up Roll. The turning force of the Paper Take-Up Roll overcomes the block of the Separator Fingers, causing the top sheet of paper to ride over the fingers and be fed out of the drawer into the copier.

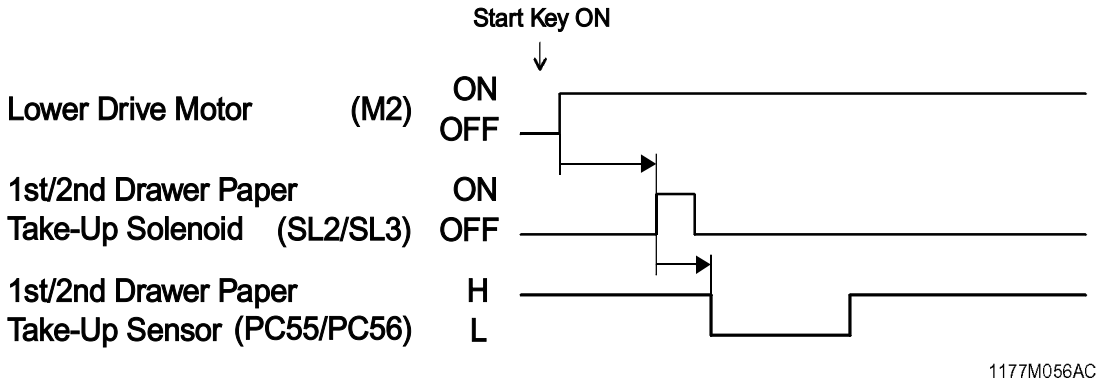


18-5. Paper Take-Up Roll

Since the paper is wedged in the mechanism when the drawer is slid out of the copier if the Paper Take-Up Roll is round in shape, the roll is semicircular and the circular part of the roll is positioned on top at all times other than take-up.



18-6. Paper Take Up Control



	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
M2	PWB-A PJ16A-5	L	H	18-B
SL2	PWB-A PJ4A-9	L	H	11-F
SL3	PWB-A PJ3A-2	L	H	11-F

	CONTROL SIGNAL	Blocked	Unblocked	WIRING DIAGRAM
PC55	PWB-A PJ4A-2	L	H	11-E
PC56	PWB-A PJ3A-7	L	H	11-G

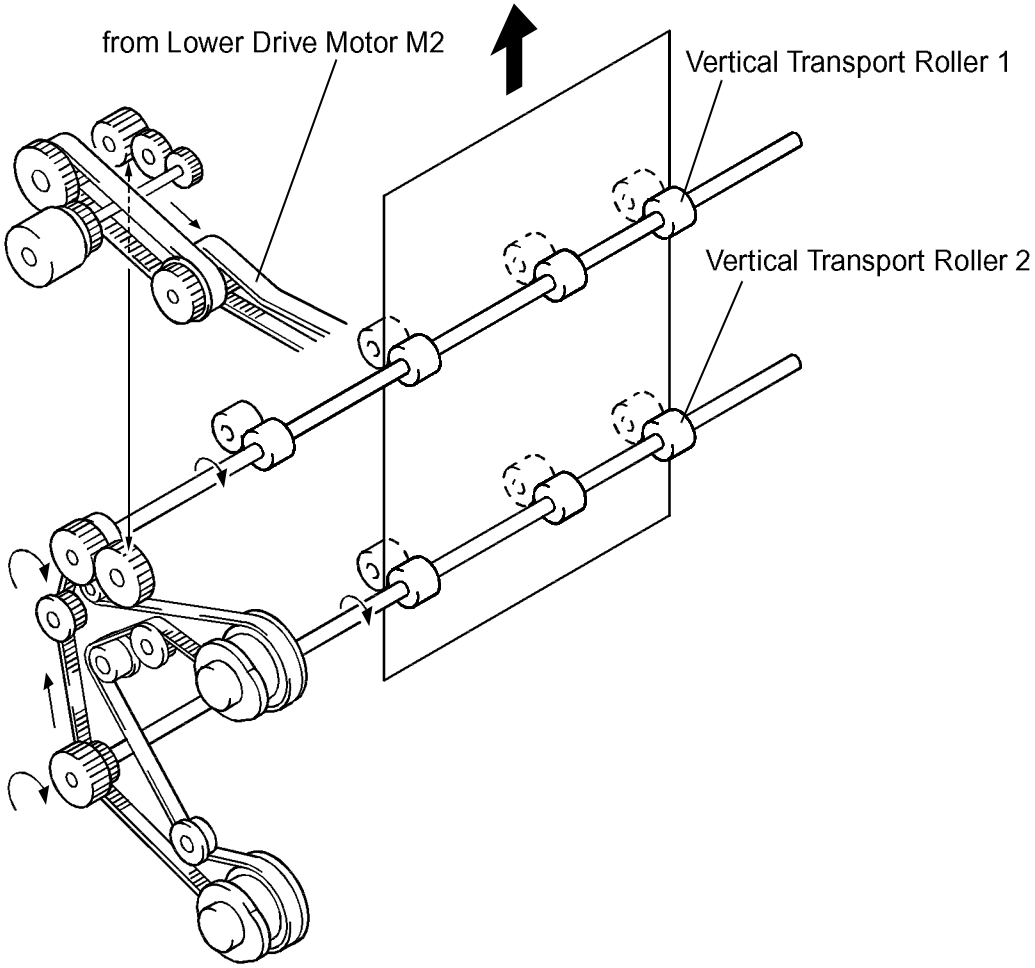
(1) Paper Take Up Retry Control

To minimize the occurrence of a paper misfeed, the paper take-up sequence is temporarily halted if the paper fails to reach the Paper Take-Up Detecting Sensor within a given period of time after the sequence has been started. The paper take-up sequence is then performed again. These paper take-up sequences are repeated a given number of times.

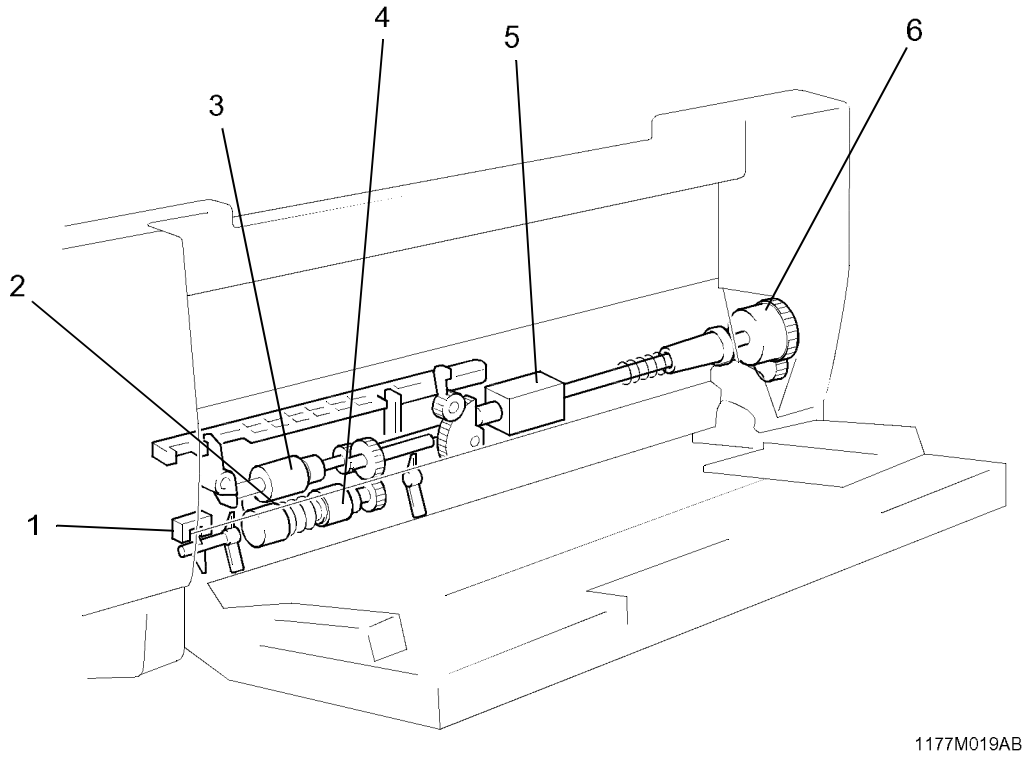
	No. of Paper Take-Up Retry Sequences
Paper Take-Up Retry	up to three

18-7. Vertical Transport Drive Mechanism

A motor drives the Vertical Transport Rollers.



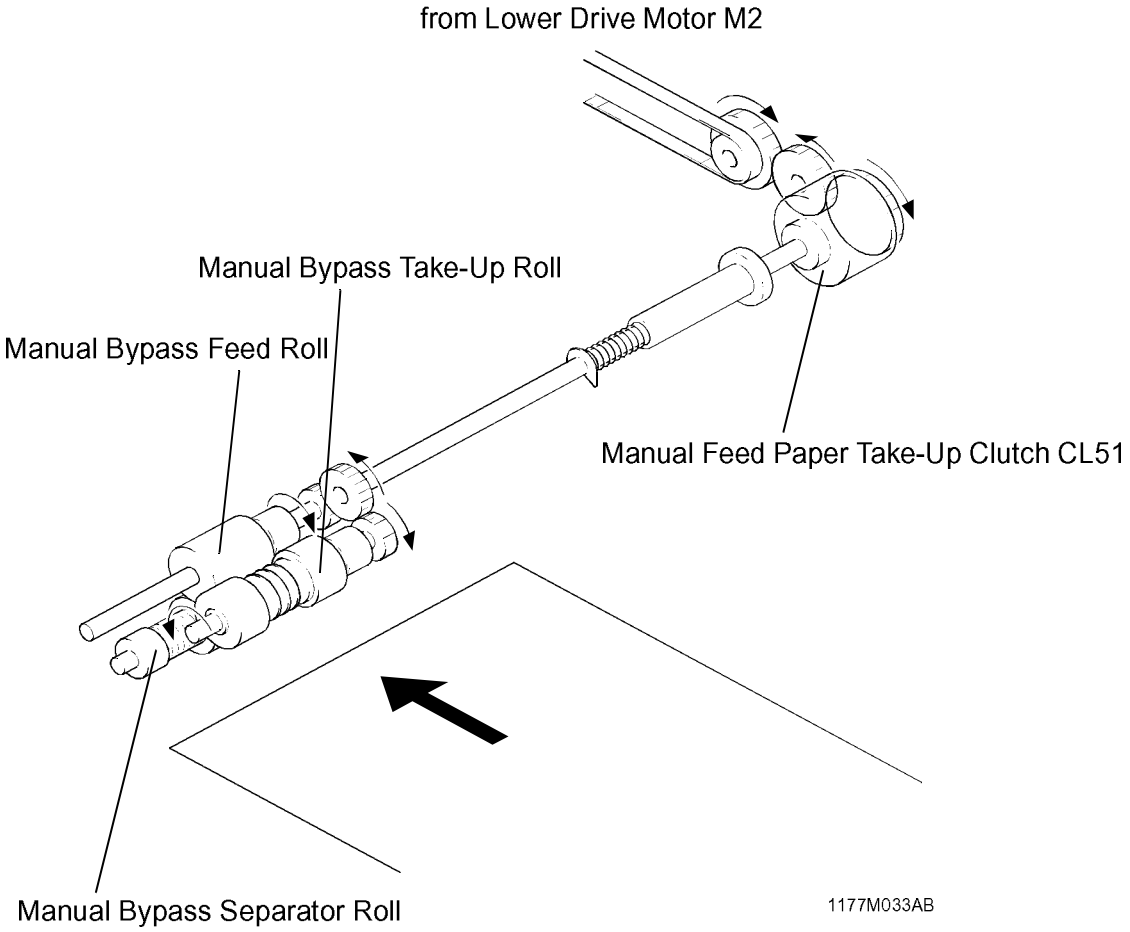
19 MANUAL FEED SECTION



1. Manual Feed Empty Sensor PC31
2. Manual Bypass Separator Roll
3. Manual Bypass Feed Roll
4. Manual Bypass Take-Up Roll
5. Manual Feed Paper Take-Up Solenoid SL51
6. Manual Feed Paper Take-Up Clutch CL51

19-1. Manual Feed Paper Take Up Drive Mechanism

Drive for paper take-up from the Manual Feed Table is transmitted from a motor via the Manual Feed Paper Take-Up Clutch.

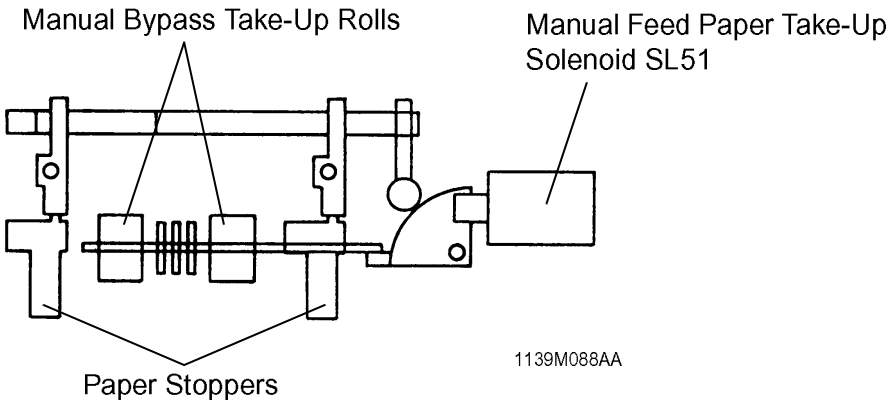

from Lower Drive Motor M2
Manual Bypass Take-Up Roll
Manual Bypass Feed Roll
Manual Feed Paper Take-Up Clutch CL51
Manual Bypass Separator Roll
1177M033AB

19-2. Manual Bypass Take Up Roll Pressure Mechanism

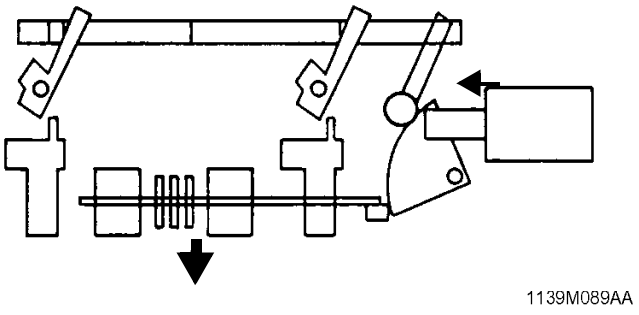
The Manual Bypass Take-Up Roll is raised and lowered by energizing and deenergizing the solenoid.

	Take-Up Roll Position	Paper Stoppers
At take-up	Down	Free
At timings other than take-up	Up	Locked

In Standby



At Take-Up



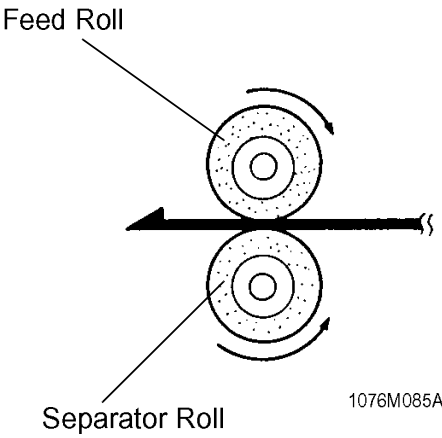
19-3. Manual Feed Paper Separating Mechanism

The difference in friction coefficient between the Feed Roll and Separator Roll is used to stop the rotation of the Separator Roll for the prevention of double feed.

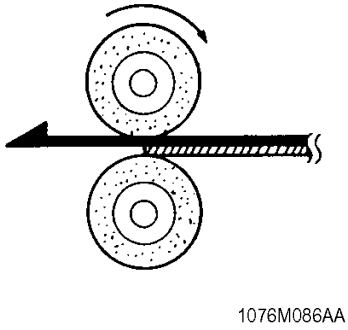
Normal feeding: When only one sheet of paper is taken up, the friction coefficient on the top side of the paper is equal to that on the underside. The Separator Roll is driven by the Feed Roll, which results in the paper being fed on.

Double feeding: Since the friction coefficient between the second sheet of paper and the greater than that between the first and second sheets of paper, the Separator Roll remains stationary, allowing the Feed Roll to feed only the first sheet of paper.

Normal Feeding

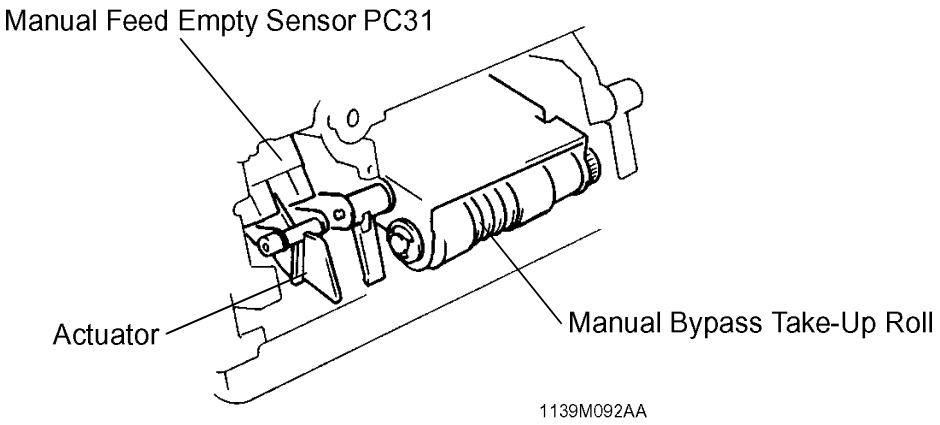


Double Feeding



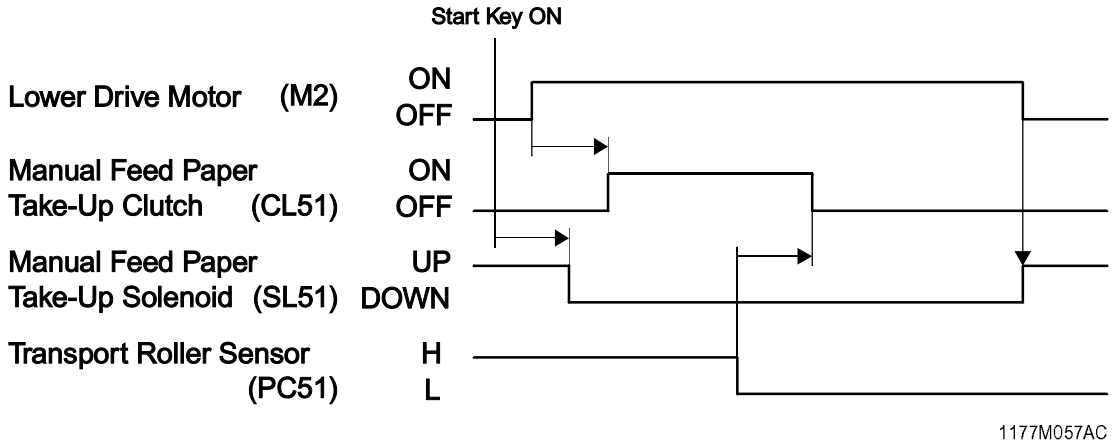
19-4. Manual Feed Paper Empty Detection Mechanism

The Manual Feed Empty Sensor detects a sheet of paper on the Manual Feed Table.



	CONTROL SIGNAL	Blocked	Unblocked	WIRING DIAGRAM
PC31	PWB-A PJ13A-6A	L	H	11-I

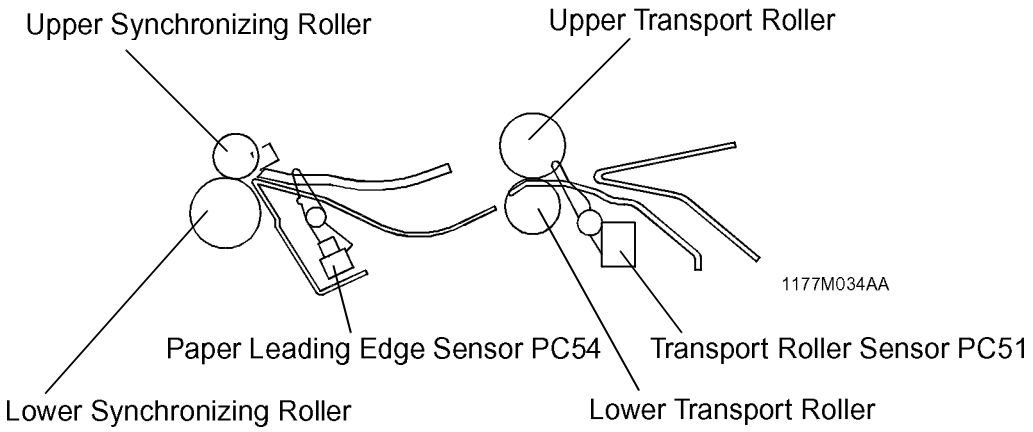
19-5. Manual Feed Take Up Control



	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
CL51	PWB-A PJ13A-4A	L	H	11-I
SL51 UP	PWB-A PJ13A-3A	L	H	11-H
SL51 DOWN	PWB-A PJ13A-2A	L	H	

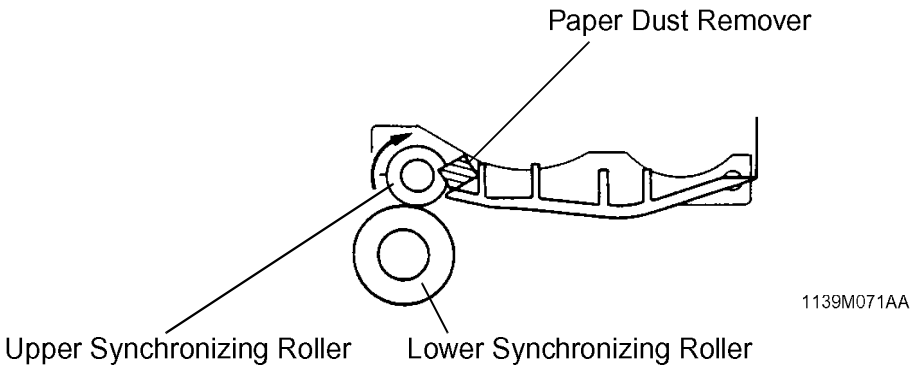
20 TRANSPORT/SYNCHRONIZING ROLLERS

The Synchronizing Rollers are turned in time with the optical section (Scanner) and transport section (paper).



20-1. Paper Dust Remover

Triboelectric charges generated on the upper roller attract paper dust from the paper and the dust is then transferred onto the Paper Dust Remover.

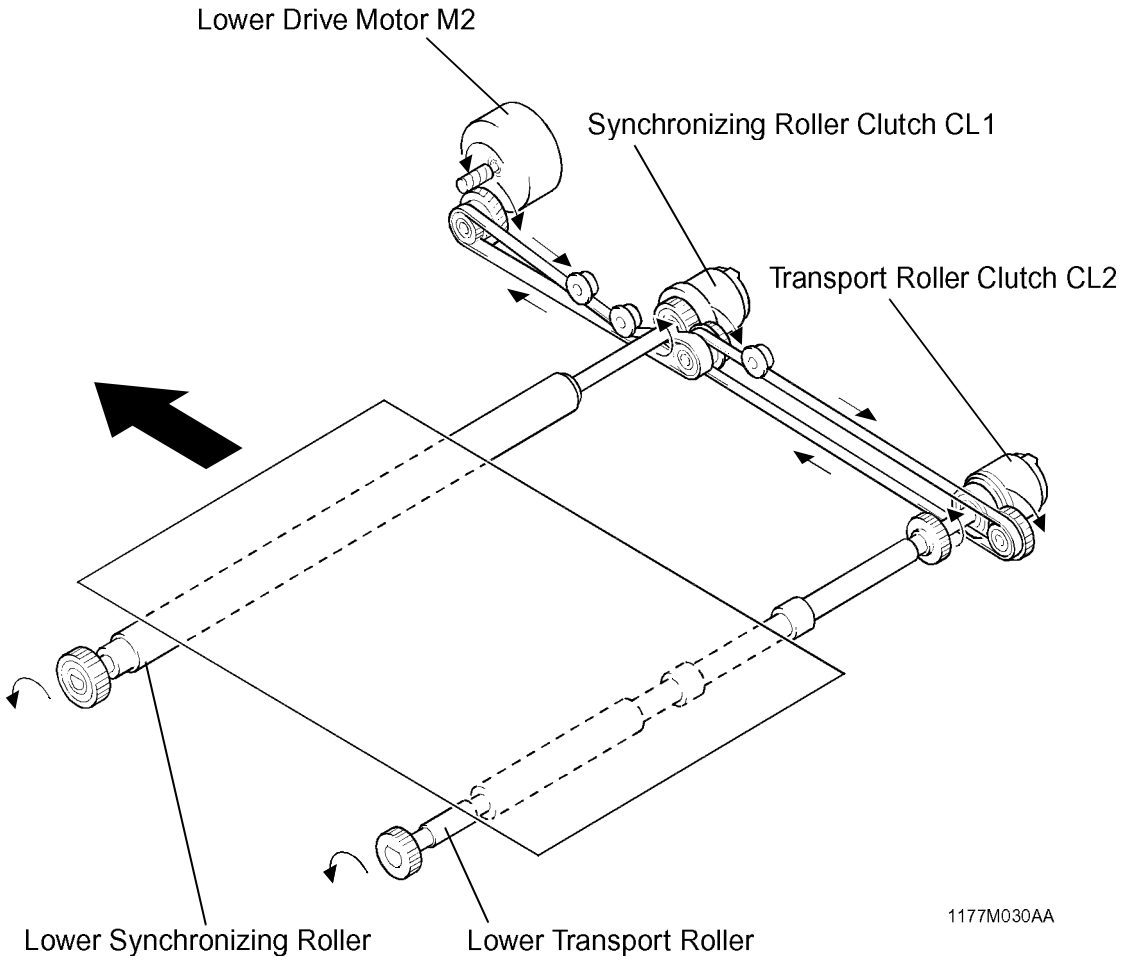


20-2. Transport Roller Drive Mechanism

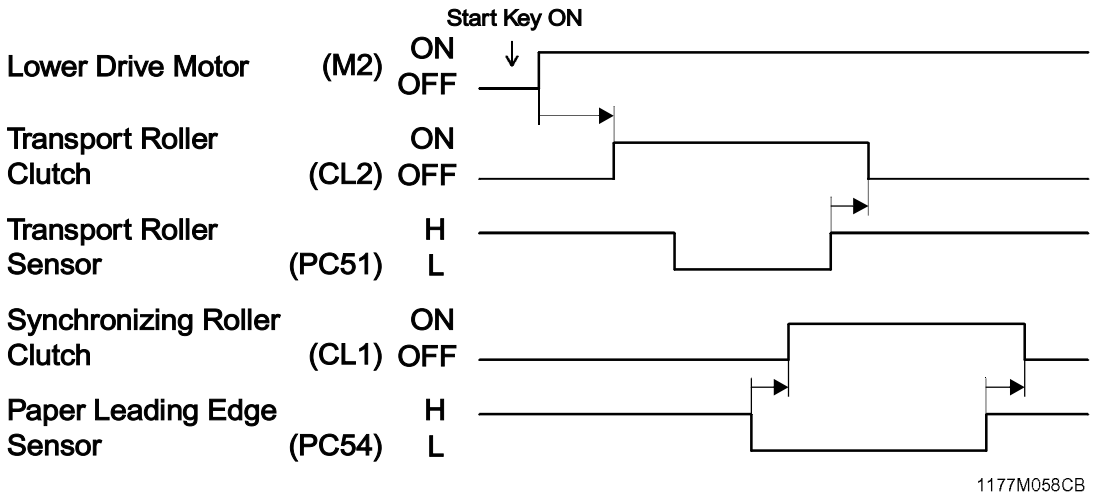
The Transport Roller is driven by a motor through a clutch.

20-3. Synchronizing Roller Drive Mechanism

The Synchronizing Roller is driven by a motor through a clutch.



20-4. Transport Drive Control

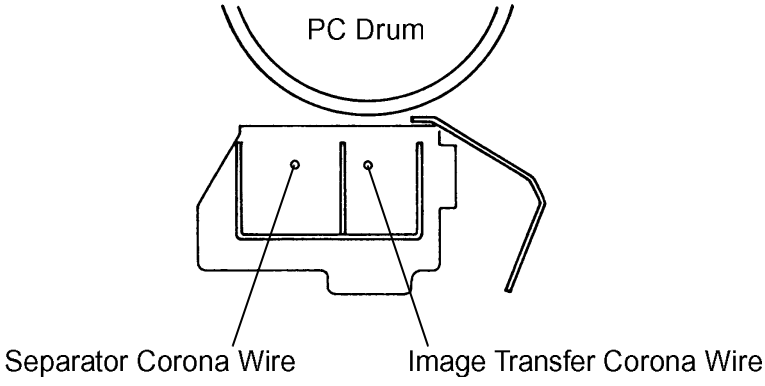


	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
CL1	PWB-A PJ5A-4A	L	H	2-F
CL2	PWB-A PJ5A-2A	L	H	2-F

	CONTROL SIGNAL	Blocked	Unblocked	WIRING DIAGRAM
PC51	PWB-A PJ13A-5B	L	H	2-I
PC54	PWB-A PJ13A-2B	L	H	2-I

21 IMAGE TRANSFER AND PAPER SEPARATION

- The DC corona emission applied by the Image Transfer Corona attracts the toner image formed on the surface of the PC Drum onto the surface of the paper, forming a visible, developed image of the original.
- The AC corona emission applied by the Paper Separator Corona weakens electrostatic attraction between the paper and PC Drum.
- The PC Drum Paper Separator Fingers physically peel paper off the surface of the PC Drum.



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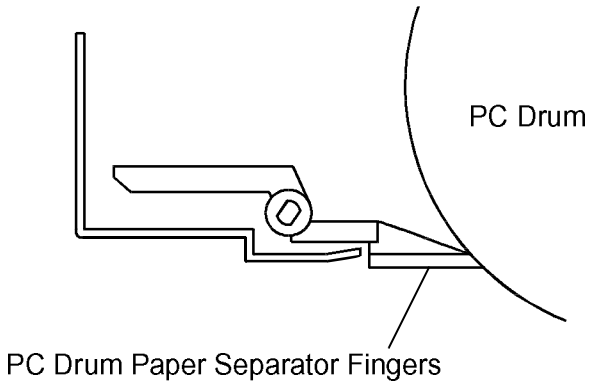
	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
Image Transfer Corona	PWB-A PJ8A-7	L	H	1-H
Paper Separator Corona	PWB-A PJ8A-8	L	H	1-H

21-1. PC Drum Paper Separator Fingers Section

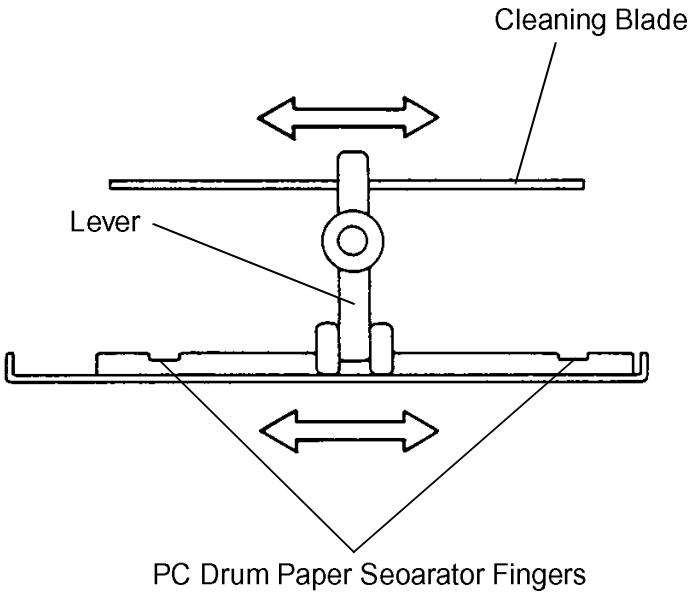
- The PC Drum Paper Separator Fingers physically peel paper off the surface of the PC Drum.
- The PC Drum Paper Separator Fingers are constantly held pressed against the surface of the PC Drum.



1174M006AA

(1) Finger Back and Forth Detection Mechanism

- The PC Drum Paper Separator Fingers are moved back and forth to reduce damage to the PC Drum.
- The PC Drum Paper Separator Fingers are connected to the Cleaning Blade lateral movement mechanism by a lever.



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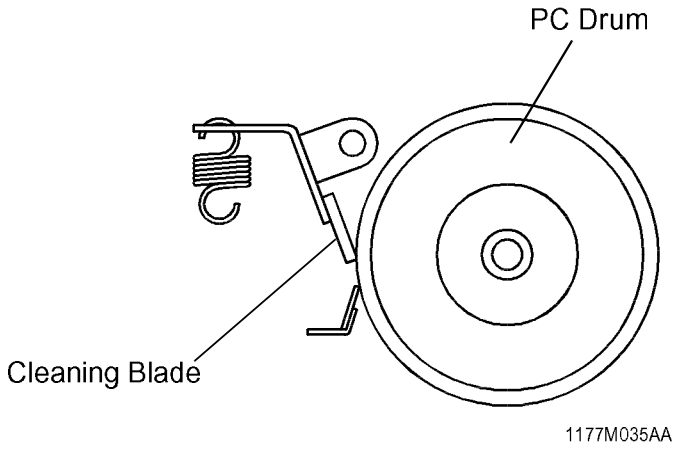
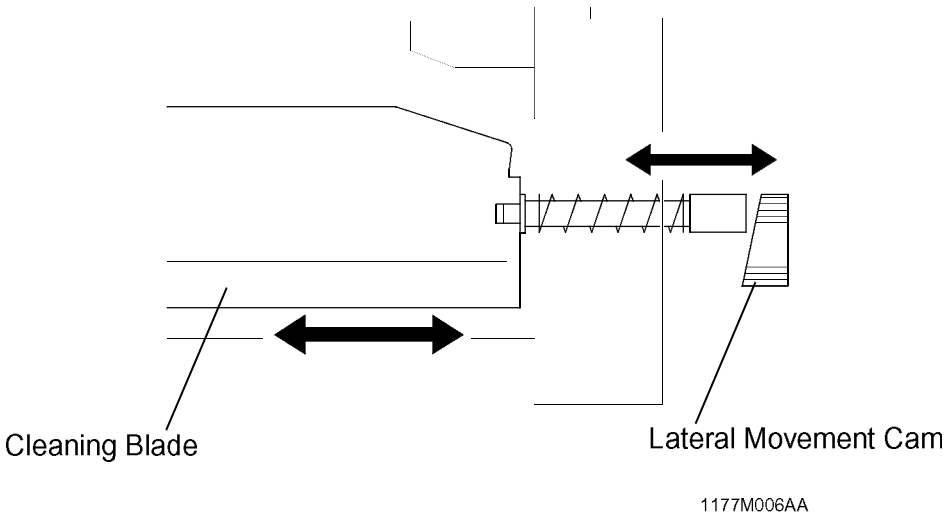
22 PC DRUM CLEANING SECTION

The Cleaning Blade scrapes off any toner remaining on the surface of the PC Drum.



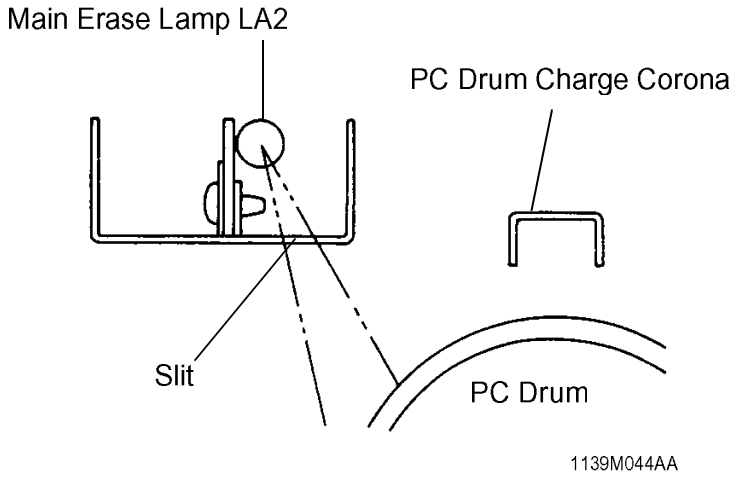
22-1. Cleaning Blade Moving Mechanism

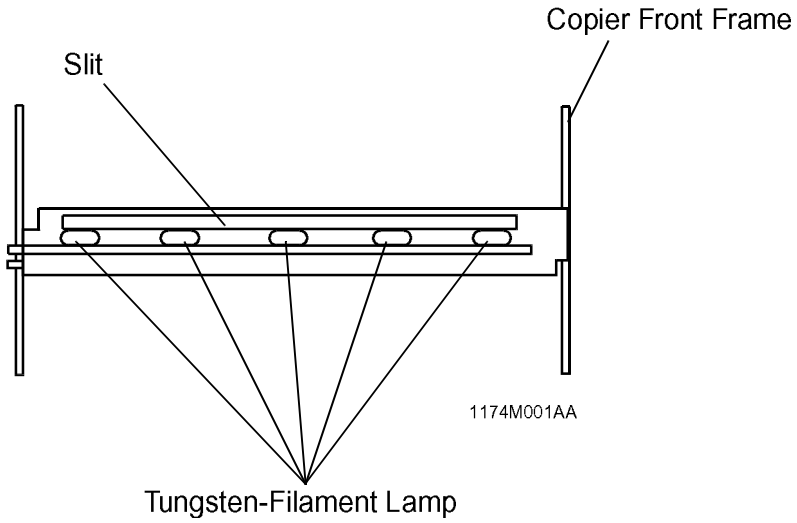
- The Cleaning Blade is moved back and forth while the PC Drum is turning to ensure that all residual toner is scraped cleanly off the surface of the PC Drum, thereby preventing the PC Drum as well as Cleaning Blade from deteriorating.
- Drive from a motor turns the Lateral Movement Cam, which results in the Cleaning Blade being moved back and forth.



23 MAIN ERASE SECTION

The light from the Main Erase Lamp neutralizes any surface potential remaining on the surface of the PC Drum after cleaning.

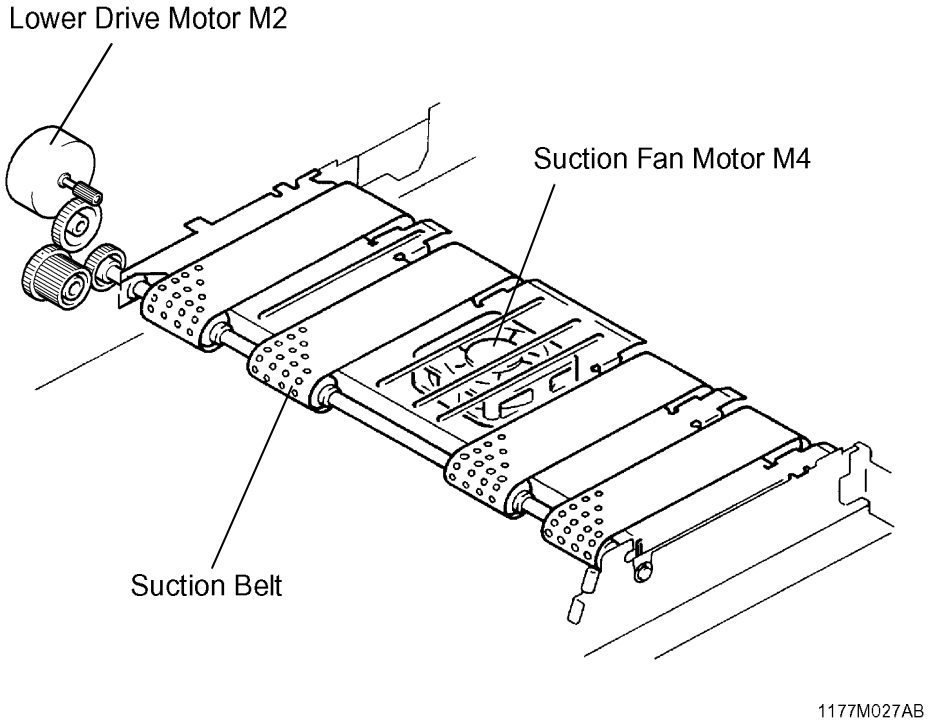




	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
LA2	PWB-A PJ10A-10	L	H	1-E

24 TRANSPORT SECTION

+ Rotation of the Suction Fan Motor results in the paper separated from the PC Drum being drawn onto the turning Suction Belts.
+ The Suction Belts are driven by a motor.



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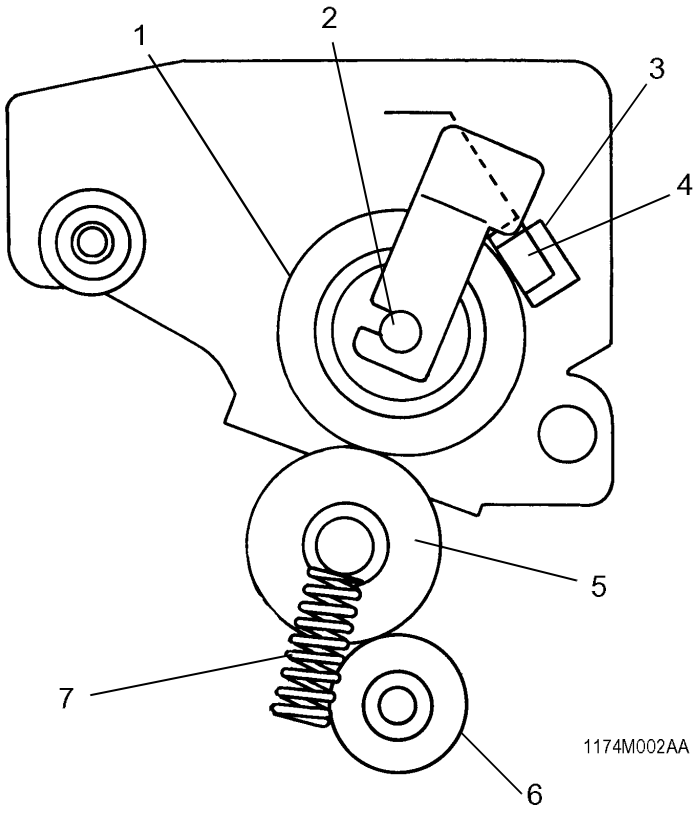
	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
M4	PWB-A PJ5A-8B	L	H	2-F

25 FUSING UNIT SECTION

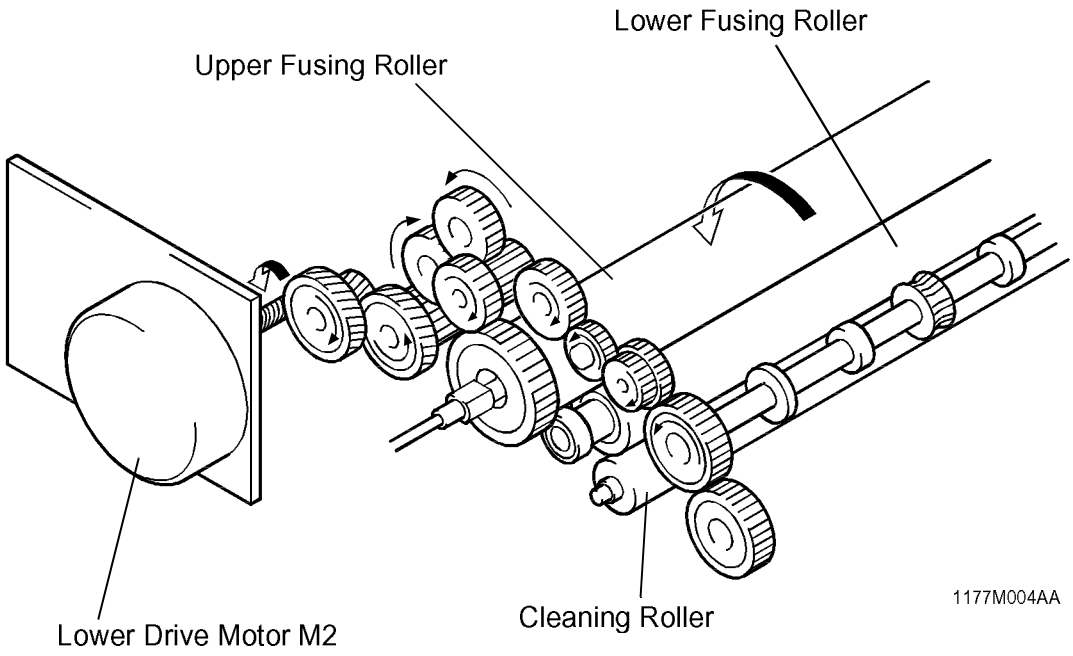
The Fusing Unit fixes permanently the developed image to the paper by applying heat and pressure to the toner and paper.



1. Upper Fusing Roller
2. Fusing Heater Lamp H1
3. Fusing Thermoswitch TS1
4. Thermistor TH1
5. Lower Fusing Roller
6. Cleaning Roller
7. Pressure Spring

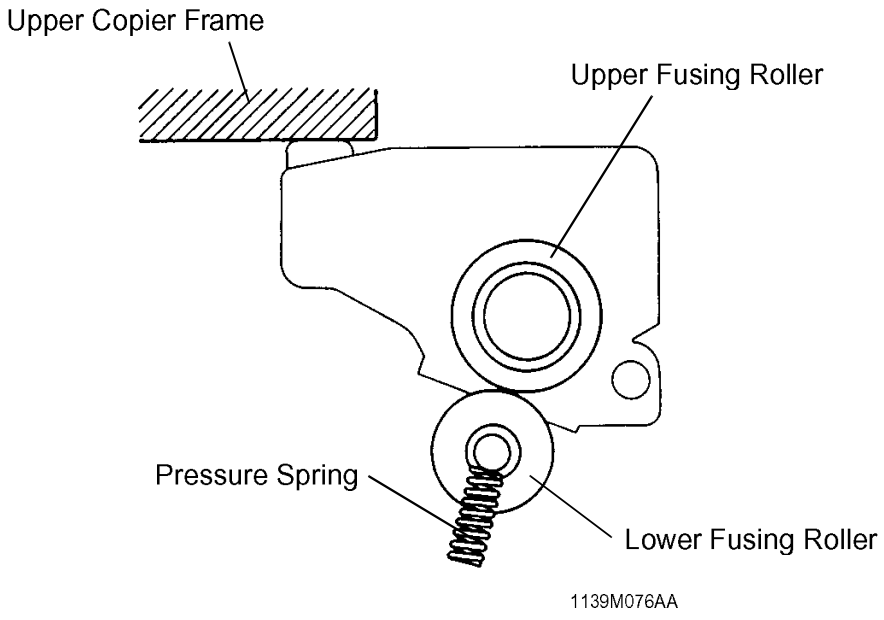
25-1. Fusing Unit Drive Mechanism

The Fusing Unit is driven by a motor.



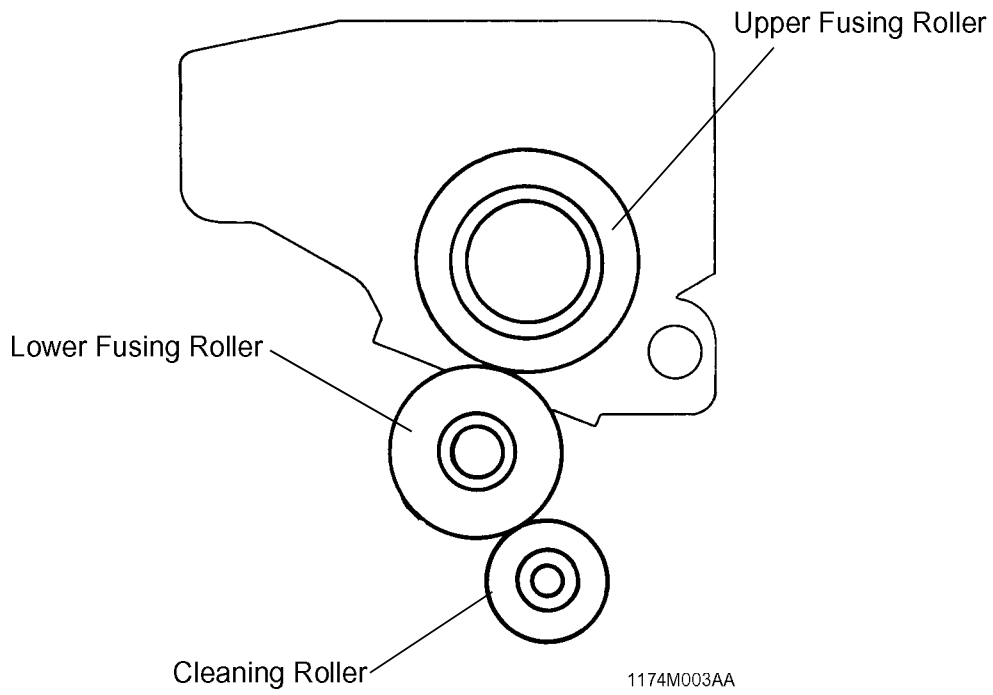
25-2. Fusing Rollers Pressure Mechanism

To provide pressure and ensure that there is a certain width of area of contact between the Upper and Lower Fusing Rollers, a pressure spring is used to press the Lower Fusing Roller up against the Upper Fusing Roller.



25-3. Fusing Roller Cleaning Mechanism

The Cleaning Roller is pressed against the Lower Fusing Roller for cleaning the roller.

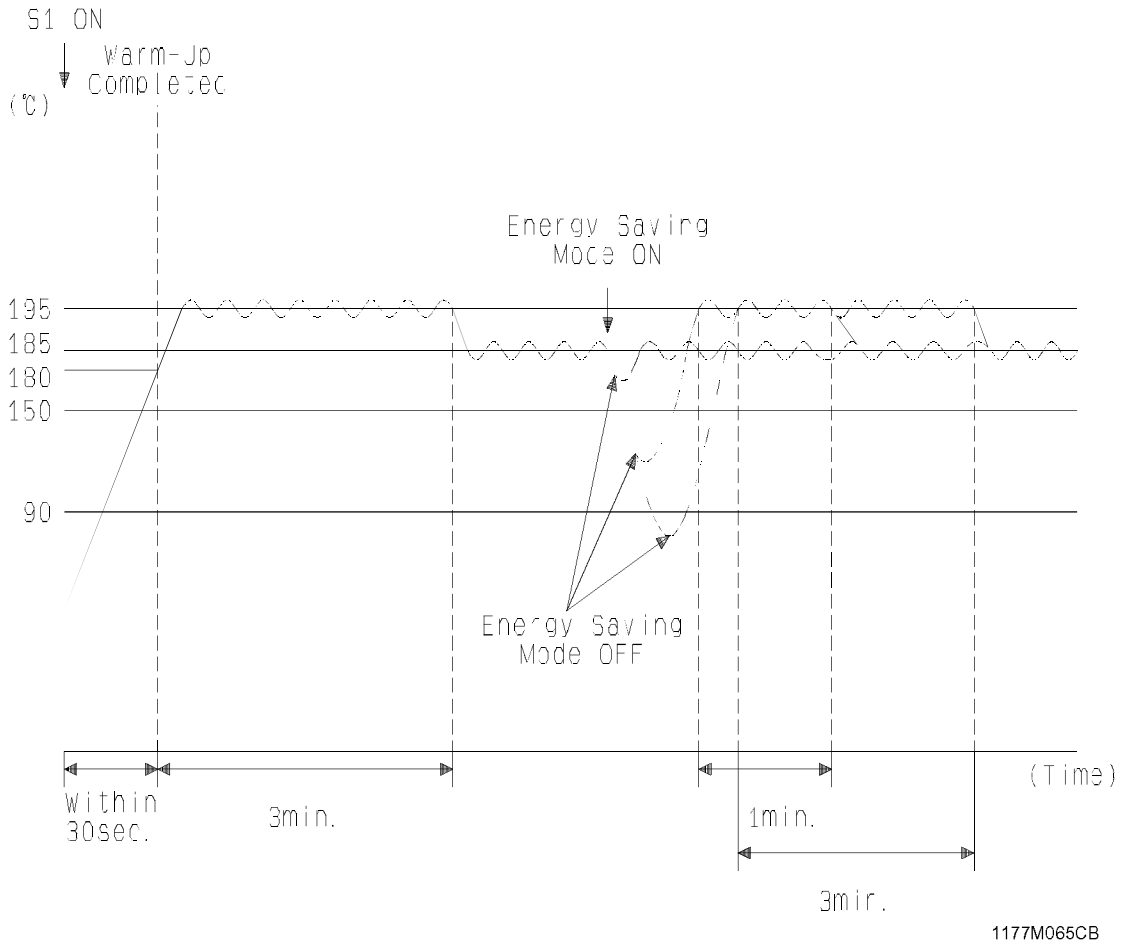


25-4. Fusing Temperature Control

- The Fusing Roller Heater Lamp is turned ON and OFF to maintain a set temperature on the surface of the Fusing Roller.
- The Fusing Roller surface temperature is detected by using a thermistor that translates the temperature to a corresponding electrical signal.
- If the Fusing Roller temperature becomes excessively high, the Fusing Roller Heater Lamp is shut down.

Part Name	Symbol	Function	Controlled Temperature
Fusing Heater Lamp	H1	- Turns ON during the warming-up cycle. - Turns ON during a copy cycle. - Turns ON in the standby state following warming-up.	—
Thermistor	TH1	- Detects the surface temperature of the Upper Fusing Roller. - Detecting an abnormally low temperature (130 °C): C0510	185 °C
Fusing Thermoswitch	TS1	- Detecting an abnormally high temperature (230 °C): C0520 (Shuts down power supply to H1)	—

Fusing Roller surface temperature	Fusing temperature control
Less than 90 °C	Temperature is controlled at 195 °C for 3 min. after the copier has completed warming up, which is followed by a temperature control at 185 °C.
Less than 150 °C	Temperature is controlled at 195 °C for 1 min. after the copier has completed warming up, which is followed by a temperature control at 185 °C.
More than 150 °C	Temperature is controlled at 185 °C after the copier has completed warming up.



	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
H1	PWB-A PJ7A-1	L	H	2-B

	CONTROL SIGNAL	Low Temp. ⇔ High Temp.	WIRING DIAGRAM
TH1	PWB-A PJ7A-2	Analog Input	2-A

26 OTHER MECHANISMS

26-1. Memory Backup

- RAM Board connected to the Master Board stores the setting/adjustment values set in the Tech. Rep. modes as well as the counter counts.
- A backup battery is mounted on the RAM Board to prevent the contents of memory from being lost when the power cord is unplugged or the RAM Board is removed from the copier.

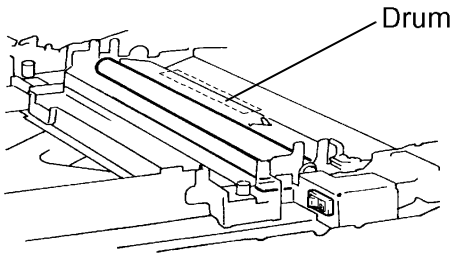
IMPORTANT

If the RAM Board has been replaced with a new one, memory must first be cleared and then all settings be made again. It should also be noted that the RAM Board should not be replaced at the same time when the Master Board is replaced.

26-2. Dehumidifying Mechanism

(1) PC Drum Dehumidifying

÷ A heater is used to prevent condensation from forming on the surface of the PC Drum due to changes in temperature and humidity.



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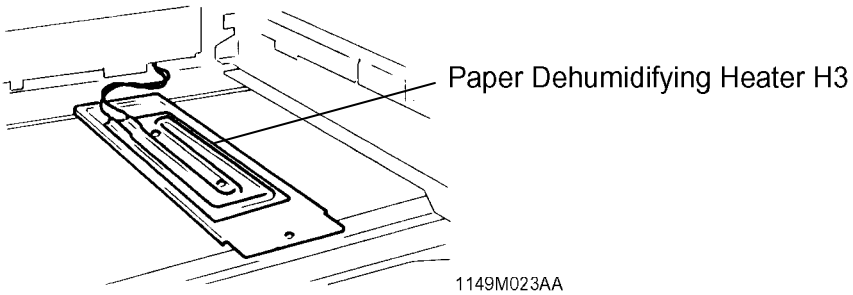
	Power Cord	Power Switch	Drum Dehumidifying Switch
Heater ON conditions	IN	OFF	ON

	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
H2	CN10-1	DC24V	–	1-D

(2) Paper Dehumidifying Mechanism

÷ A heater is used to prevent image transfer failure from occurring due to damp paper as a result of variations in the environmental conditions (temperature and humidity) surrounding the copier.



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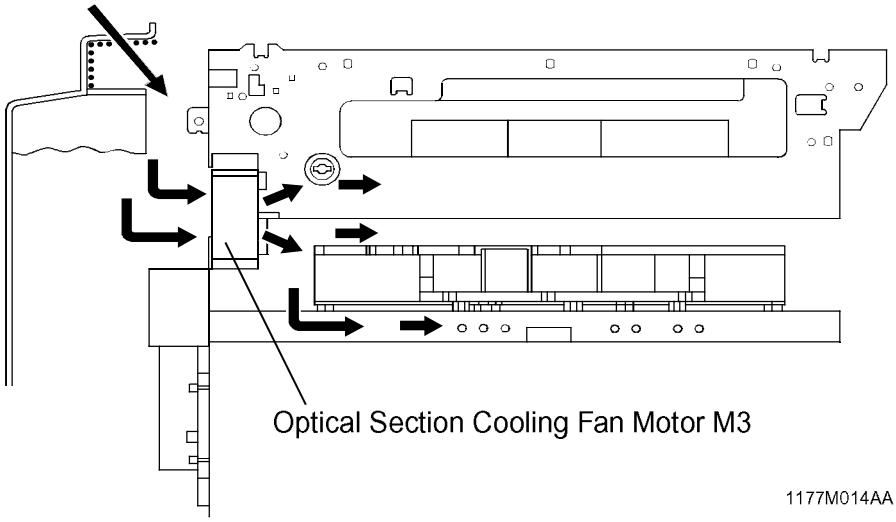
	Power Cord	Power Switch	Paper Dehumidifying Switch
Heater ON conditions	IN	OFF	ON

	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
H3	CN10-1	DC24V	–	11-G

26-3. Cooling Mechanism

(1) Optical Section Cooling Mechanism

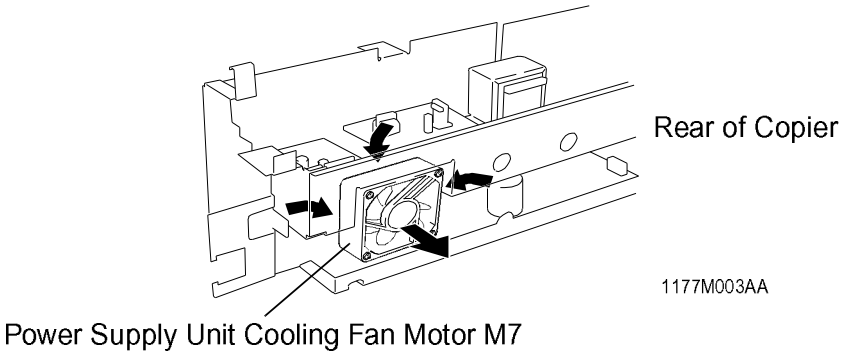
A fan motor draws air from the outside into the copier to cool the IR (especially the CCD Sensor).



	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
M3	PWB-A PJ10A-2	L	H	5-A

(2) Power Supply Section Cooling Mechanism

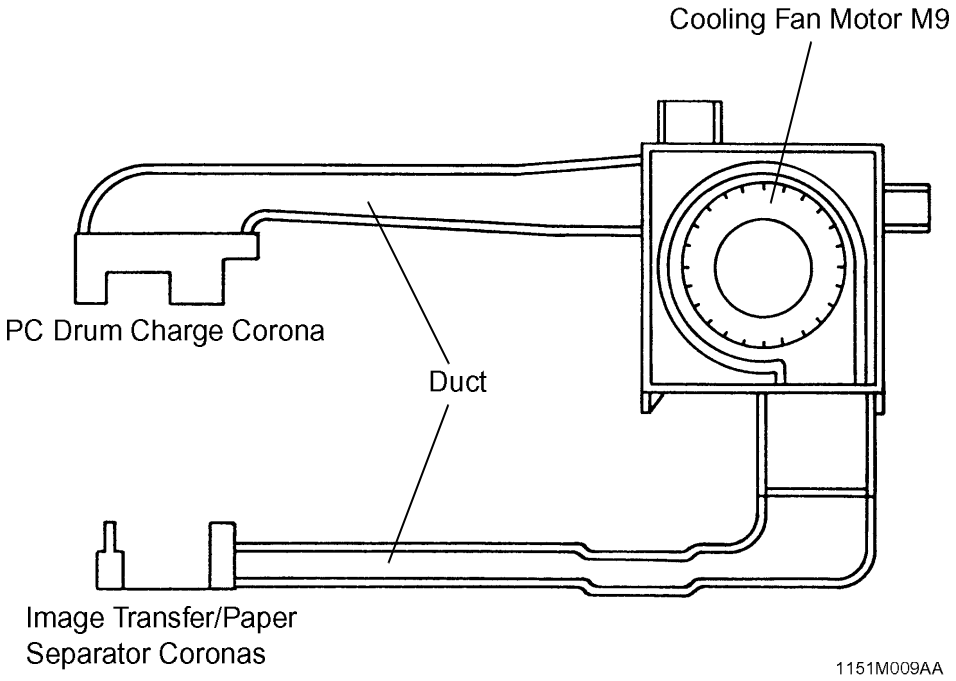
A fan motor draws air from the area around the Power Supply Unit to the outside to prevent the Power Supply Unit temperature from running high.



	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
M7	PWB-A PJ36A-11	L	H	14-I

26-4. Ozone Filter

The Ozone Filter absorbs ozone produced by the PC Drum Charge Corona and Image Transfer/Paper Separator Coronas from the air being drawn out of the copier by a fan motor.



	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
M9	PWB-A PJ20A-1	L	H	11-A

Di181

SERVICE MANUAL

[FIELD SERVICE]

MINOLTA

DIS/REASSEMBLY, ADJUSTMENT

PRECAUTIONS FOR SERVICE

When performing inspection and service procedures, observe the following precautions to prevent mishandling of the machine and its parts.

✽ Depending on the model, some of the precautions given in the following do not apply.

Precautions Before Service

- When the user is using a word processor or personal computer from a wall outlet of the same line, take necessary steps to prevent the circuit breaker from opening due to overloads.
- Never disturb the LAN by breaking or making a network connection, altering termination, installing or removing networking hardware or software, or shutting down networked devices without the knowledge and express permission of the network administrator or the shop supervisor.

How to Use this Book

1. DIS/REASSEMBLY, ADJUSTMENT

- To reassemble the product, reverse the order of disassembly unless otherwise specified.

2. TROUBLESHOOTING

- If a component on a PWB or any other functional unit including a motor is defective, the text only instructs you to replace the whole PWB or functional unit and does not give troubleshooting procedures applicable within the defective unit.
- All troubleshooting procedures contained herein assume that there are no breaks in the harnesses and cords and all connectors are plugged into the right positions.
- The procedures preclude possible malfunctions due to noise and other external causes.

Precautions for Service

- Check the area surrounding the service site for any signs of damage, wear or need of repair.
- Keep all disassembled parts in good order and keep tools under control so that none will be lost or damaged.
- After completing a service job, perform a safety check. Make sure that all parts, wiring and screws are returned to their original positions.
- Do not pull out the toner hopper while the toner bottle is turning. This could result in a damaged motor or locking mechanism.
- If the product is to be run with the front door open, make sure that the toner hopper is in the locked position.
- Do not use an air gun or vacuum cleaner for cleaning the ATDC Sensor and other sensors, as they can cause electrostatic destruction. Use a blower brush and cloth. If a unit containing these sensors is to be cleaned, first remove the sensors from the unit.

Precautions for Dis/Reassembly

- Be sure to unplug the copier from the outlet before attempting to service the copier.
- The basic rule is not to operate the copier anytime during disassembly. If it is absolutely necessary to run the copier with its covers removed, use care not to allow your clothing to be caught in revolving parts such as the timing belt and gears.
- Before attempting to replace parts and unplug connectors, make sure that the power cord of the copier has been unplugged from the wall outlet.
- Be sure to use the Interlock Switch Actuating Jig whenever it is necessary to actuate the Interlock Switch with the covers left open or removed.
- Do not plug in or unplug print jacks on the PWB or connect or disconnect the PWB connectors while power is being supplied to the copier.
- Never use flammable sprays near the copier.
- A battery (lithium, nickel-cadmium, etc.) is used in this machine. Do not charge or short circuit it and make sure of the correct polarity at replacement.
- A used battery should be disposed of according to the local regulations and never be discarded casually or left unattended at the user's premises.
- When reassembling parts, make sure that the correct screws (size, type) and toothed washer are used in the correct places.
- If it becomes necessary to replace the thermal fuse or any other fuse mounted on a board, be sure to use one of the rating marked on the blown fuse. Always note the rating marked on the fuse, as the rating and mounting site or number used are subject to change without notice.

Precautions for Circuit Inspection

- Never create a closed circuit across connector pins except those specified in the text and on the printed circuit.
- When creating a closed circuit and measuring a voltage across connector pins specified in the text, be sure to use the GND wire.

Handling of PWBs

1. During Transportation/Storage:

- During transportation or when in storage, new P.W. Boards must not be indiscriminately removed from their protective conductive bags.
- Do not store or place P.W. Boards in a location exposed to direct sunlight and high temperature.
- When it becomes absolutely necessary to remove a Board from its conductive bag or case, always place it on its conductive mat in an area as free as possible from static electricity.
- Do not touch the pins of the ICs with your bare hands.
- Protect the PWBs from any external force so that they are not bent or damaged.

2. During Inspection/Replacement:

- Avoid checking the IC directly with a multimeter; use connectors on the Board.
- Never create a closed circuit across IC pins with a metal tool.
- Before unplugging connectors from the P.W. Boards, make sure that the power cord has been unplugged from the outlet.
- When removing a Board from its conductive bag or conductive case, do not touch the pins of the ICs or the printed pattern. Place it in position by holding only the edges of the Board.
- When touching the PWB, wear a wrist strap and connect its cord to a securely grounded place whenever possible. If you cannot wear a wrist strap, touch a metal part to discharge static electricity before touching the PWB.
- Note that replacement of a PWB may call for readjustments or resetting of particular items.

Handling of Other Parts

- The magnet roller generates a strong magnetic field. Do not bring it near a watch, floppy disk, magnetic card, or CRT tube.

Handling of the PC Drum

✽ Only for Products Not Employing an Imaging Cartridge.

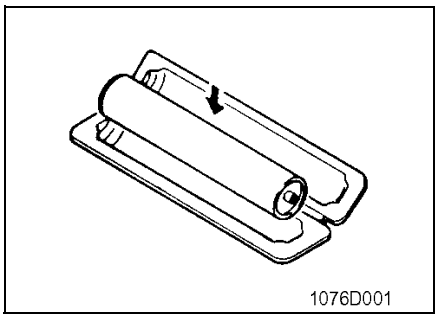
1. During Transportation/Storage:

÷ Use the specified carton whenever moving or storing the PC Drum.
÷ The storage temperature is in the range between –20°C and +40°C.
÷ In summer, avoid leaving the PC Drum in a car for a long time.

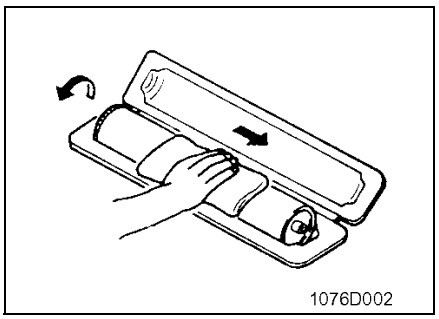
2. Handling:

÷ Ensure that the correct PC Drum is used.
÷ Whenever the PC Drum has been removed from the copier, store it in its carton or protect it with a Drum Cloth.
÷ The PC Drum exhibits greatest light fatigue after being exposed to strong light over an extended period of time. Never, therefore, expose it to direct sunlight.
÷ Use care not to contaminate the surface of the PC Drum with oil-base solvent, fingerprints, and other foreign matter.
÷ Do not scratch the surface of the PC Drum.
÷ Do not apply chemicals to the surface of the PC Drum.
÷ Do not attempt to wipe clean the surface of the PC Drum.

If, however, the surface is contaminated with fingerprints, clean it using the following procedure.



1. Place the PC Drum into one half of its carton.

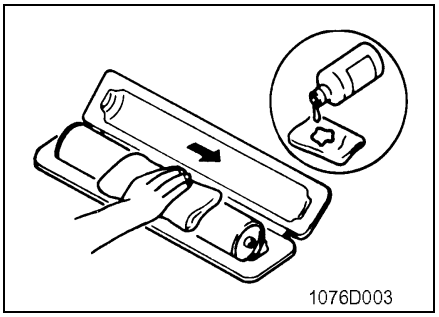


2. Gently wipe the residual toner off the surface of the PC Drum with a dry, Dust-Free Cotton Pad.

A. Turn the PC Drum so that the area of its surface on which the line of toner left by the Cleaning Blade is present is facing straight up. Wipe the surface in one continuous movement from the rear edge of the PC Drum to the front edge and off the surface of the PC Drum.

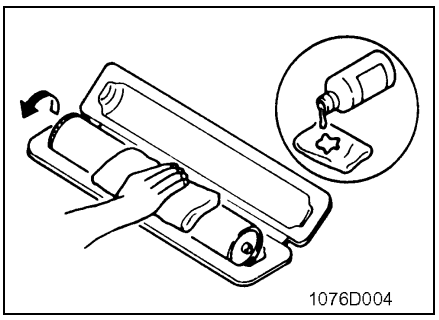
B. Turn the PC Drum slightly and wipe the newly exposed surface area with a CLEAN face of the Dust-Free Cotton Pad. Repeat this procedure until the entire surface of the PC Drum has been thoroughly cleaned.

✽ At this time, always use a CLEAN face of the dry Dust-Free Cotton Pad until no toner is evident on the face of the Pad after wiping.



3. Soak a small amount of either ethyl alcohol or isopropyl alcohol into a clean, unused Dust-Free Cotton Pad which has been folded over into quarters. Now, wipe the surface of the PC Drum in one continuous movement from its rear edge to its front edge and off its surface one to two times.

❃ Never move the Pad back and forth.



4. Using the SAME face of the Pad, repeat the procedure explained in the latter half of step 3 until the entire surface of the PC Drum has been wiped. Always OVERLAP the areas when wiping. Two complete turns of the PC Drum would be appropriate for cleaning.

NOTES

- *Even when the PC Drum is only locally dirtied, wipe the entire surface.*
- *Do not expose the PC Drum to direct sunlight. Clean it as quickly as possible even under interior illumination.*
- *If dirt remains after cleaning, repeat the entire procedure from the beginning one more time.*

Handling of the Imaging Cartridge

❃ Only for Products Employing an Imaging Cartridge.

1. During Transportation/Storage:

- The storage temperature is in the range between –20°C and +40°C.
- In summer, avoid leaving the Imaging Cartridge in a car for a long time.

2. Handling:

- Store the Imaging Cartridge in a place that is not exposed to direct sunlight.

3. Precautionary Information on the PC Drum Inside the Imaging Cartridge:

- Use care not to contaminate the surface of the PC Drum with oil-base solvent, fingerprints, and other foreign matter.
- Do not scratch the surface of the PC Drum.
- Do not attempt to wipe clean the surface of the PC Drum.

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27 SERVICE INSTRUCTION

1-1. PARTS WHICH MUST NOT BE TOUCHED

(1) Screws

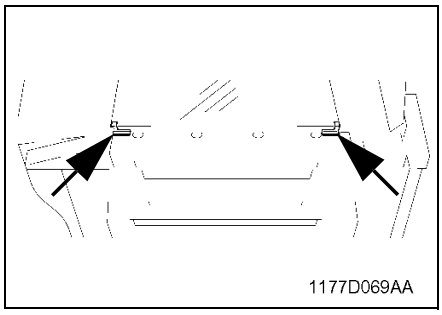
Purpose of Application of Red Paint
Red paint is applied to the screws which cannot be readjusted, set, or reinstalled in the field. The basic rule is not to remove or loosen the screws to which red paint is applied. In addition, be advised that, if two or more screws are designated as those which must not be touched on a single part, only one representative screw may be marked with red paint.

(2) Variable Resistors on Boards

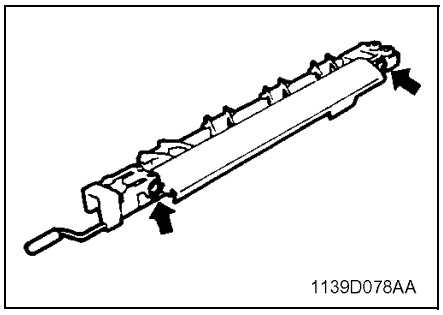
Do not turn the variable resistors on boards for which no adjusting instructions are given in "ADJUSTMENT."

(3) Other Screws

Original Glass Positioning Bracket (2 screws)

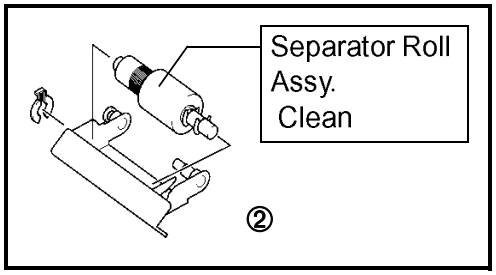


Lower Pre-Image Transfer Guide Plate (2 screws)

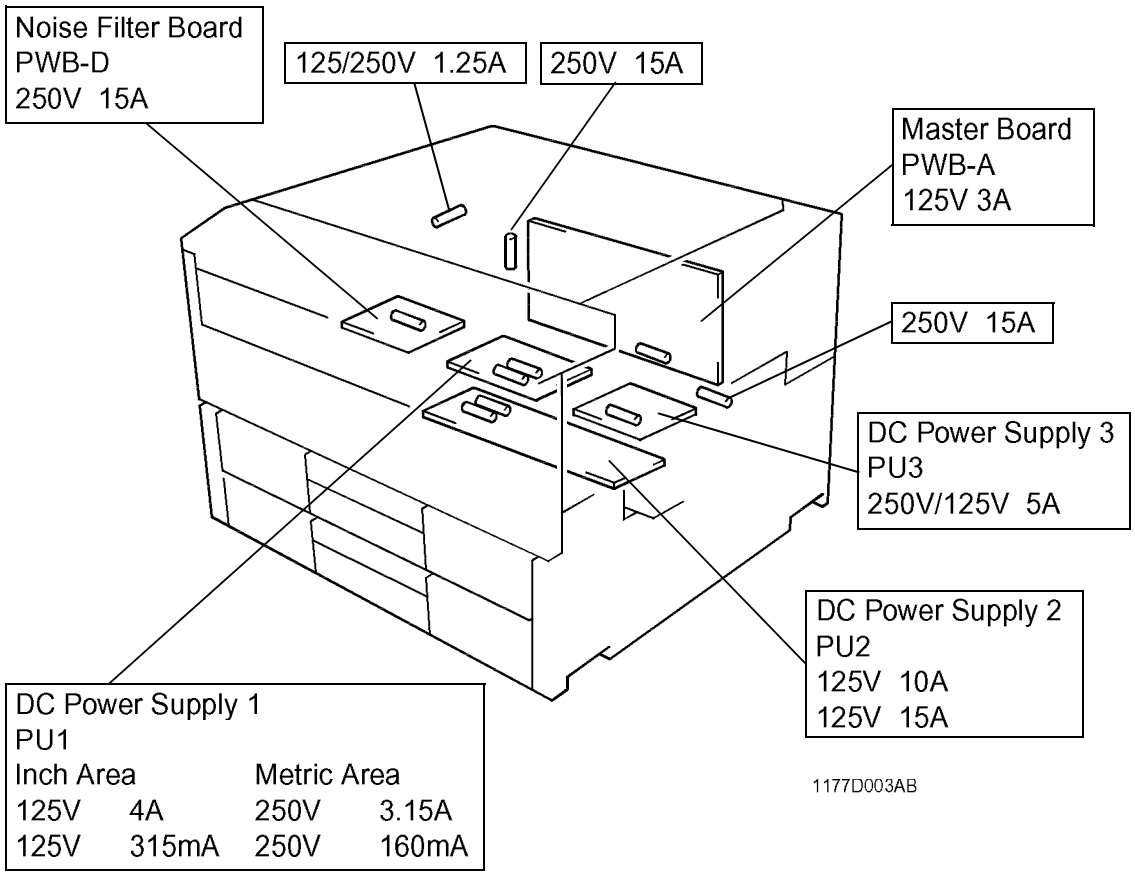


1-2. READING THE TEXT

The disassembly order is indicated by the corresponding number in the illustration.
For parts that require special attention and service jobs, they are given inside a separate frame.



1-3. IDENTIFICATION OF FUSES



1-4. PRECAUTIONS FOR HANDLING THE LASER EQUIPMENT

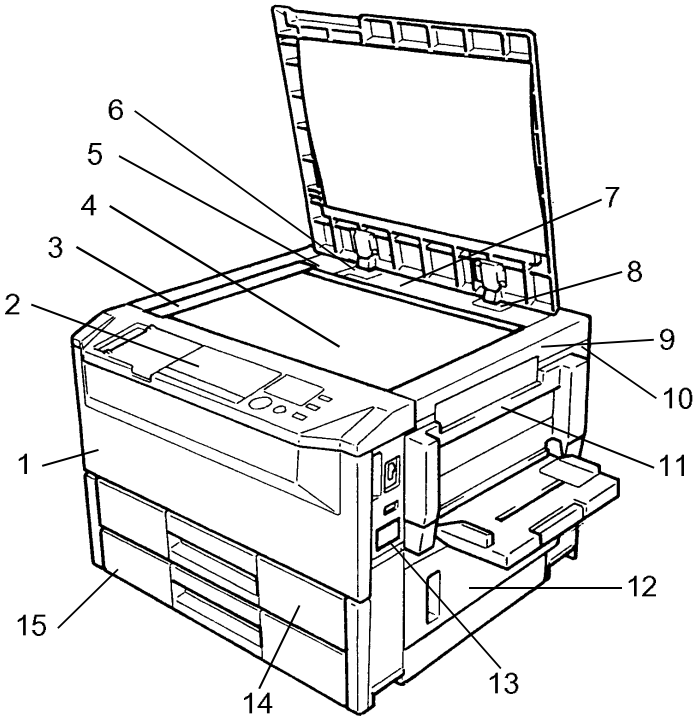
+ The laser used in this copier is a semiconductor laser having the following specifications.

Max. power: 5mW Output wavelength: 770~795nm

+ When laser protective goggles are to be used, select ones with a lens conforming to the above specifications.
+ When a disassembly job needs to be performed in the laser beam path, such as when working around the printerhead and PC Drum, be sure first to turn the copier OFF.
+ If the job requires that the copier be left ON, take off your watch and ring and wear laser protective goggles.
+ A highly reflective tool can be dangerous if it is brought into the laser beam path. Use utmost care when handling tools on the user's premises.
+ The printerhead is notmaintainable in the field. It is to be replaced as an assembly including the control board. Never, therefore, attempt to remove the laser diode or adjust trimmers on the control board.

2 DISASSEMBLY/REASSEMBLY

2-1. DOORS, COVERS, AND EXTERIOR PARTS: IDENTIFICATION AND REMOVAL PROCEDURES



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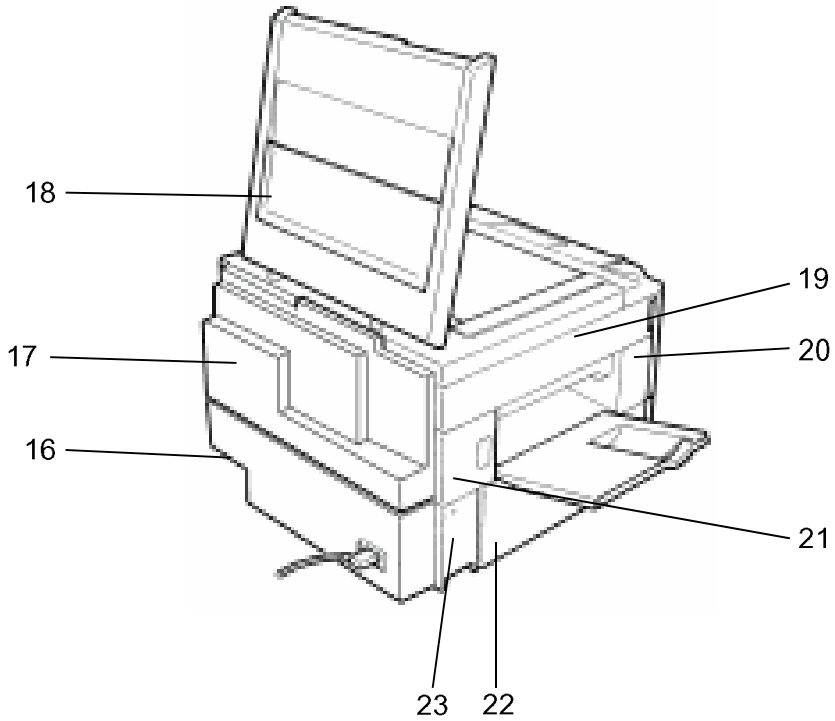

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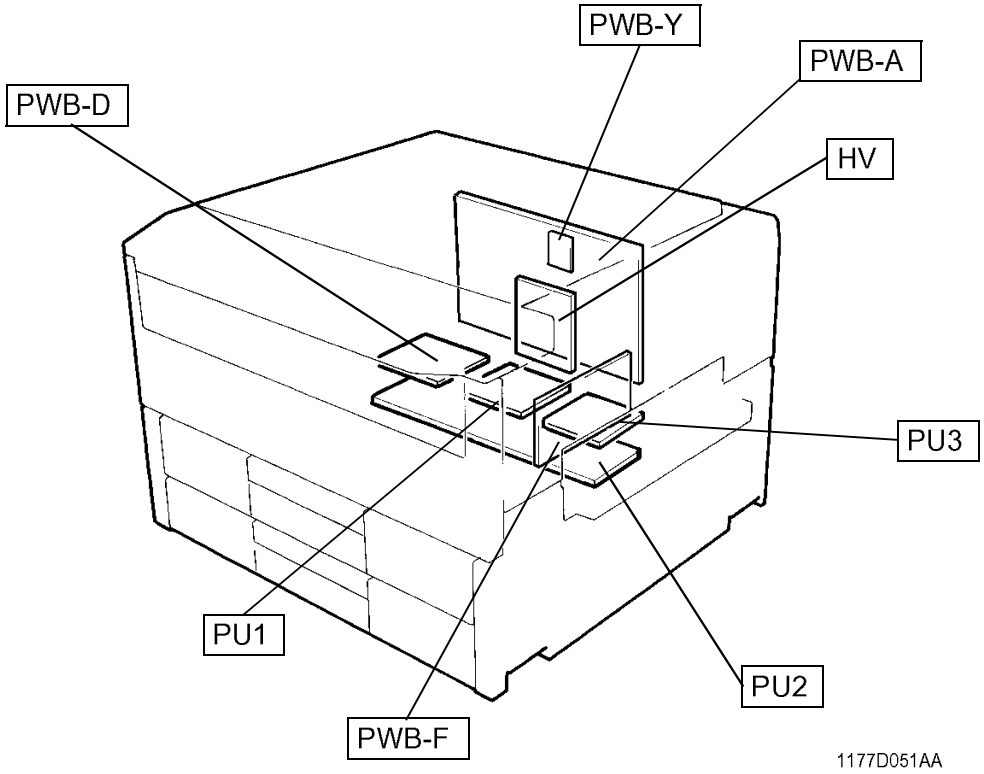
No.	Name	Removal Procedure
1	Front Door	Swing down No. 1. ↓!Remove screw that secures the Belt. ↓! Remove screws that secure the Front Door (only on one side). ↓! Slide the Door to the side from which the screws have been removed.
2	Control Panel	Swing down No. 1. ↓!Remove No. 9, 10 and 11. ↓!Release and swing up the Upper Half of the copier. ↓!Remove No. 19. ↓! Remove screws that secure the control panel.
3	Original Scale	Remove screws that secure the Scales.
4	Original Glass	
5	Rear Upper Cover (Small)	Remove the Original Cover. ↓!Remove the screw cover and mounting screw of No. 5.
6	Left Hinge Cover	Remove the Original Cover. ↓!Remove the screw cover and mounting screw of No. 6.
7	Rear Upper Cover	Remove the Original Cover. ↓!Remove No. 6, 8 and 9. ↓! Remove screw that secures No. 7.
8	Right Hinge Cover	
9	Upper Right Cover	
10	Right Cover	Remove No. 11. ↓!Remove No. 9. ↓!Remove screws that secure No. 10.
11	Middle Right Cover	Remove screws that secure No. 11.
12	Right Door	Open No. 12 and remove it by lifting it up.
13	Counter Cover	Remove No. 13 by snapping if off.
14	1st Drawer	Slide out the Drawer and remove the screw that secures the stopper at the rear left corner.
15	2nd Drawer	
16	Lower Rear Cover	Remove screws that secure No. 16.
17	Upper Rear Cover	Remove screws that secure No. 17.
18	Original Cover	———
19	Left Cover	Swing down No. 1. ↓!Release and swing up the Upper Half of the copier.!↓!Remove screws that secure No. 19.
20	Front Exit Cover	Swing down No. 1. ↓!Release and swing up the Upper Half of the copier. ↓!Remove No. 21. ↓!Remove screws that secure No. 20.
21	Rear Exit Cover	Swing down No. 1. ↓!Release and swing up the Upper Half of the copier. ↓!Remove No. 25. ↓!Remove screws that secure No. 21.
22	Lower Left Cover	Remove screws that secure No. 22.
23	Middle Rear Left Cover	Swing down No. 1. ↓!Release and swing up the Upper Half of the copier. ↓!Remove screws that secure No. 23.

2-2. REMOVAL OF PWBs

- When removing a PWB, first go over “PRECAUTIONS FOR HANDLING THE PWBs” contained and use the removal procedures given on the next page.
- Replacement of a PWB may call for readjustments or resetting of particular items.
- The removal procedures given on the next page omit the steps to unplug connectors and remove the PWB from the PWB support.



Symbol	Part Name	Removal Procedure
PWB-A	Master Board	Remove No. 17. ↓!Remove metal bracket from the Master Board.
PWB-D	Noise Filter Board	Swing down No. 1. ↓!Release and swing up the Upper Half of the copier. ↓!Remove the Electrical Cover.
PWB-F	SCP Board	Swing down No. 1. ↓!Remove No. 9, 10, 11. ↓!Remove Manual Bypass Unit.
PWB-IA	CCD Sensor Board	Remove No. 17. ↓!Remove metal bracket from the Master Board. ↓!Remove the Original Glass. ↓!Remove the CCD Assy Cover.
PWB-P	Control Panel	Swing down No .1. ↓!Remove No. 9, 10, 11 and 19.
PWB-Y	RAM Board	Remove No. 17. ↓!Remove metal bracket from the Master Board.
PU1	DC Power Supply 1	Swing down No. 1. ↓!Release and swing up the Upper Half of the copier. ↓!Remove the Electrical Cover.
PU2	DC Power Supply 2	Swing down No. 1. ↓!Release and swing up the Upper Half of the copier. ↓!Remove the Electrical Cover.
PU3	DC Power Supply 3	Swing down No. 1. ↓!Release and swing up the Upper Half of the copier. ↓!Remove the Electrical Cover.
HV	High Voltage Unit	Remove No. 17 ↓!Remove Master Board.
UN2	Original Size Detecting Board	Remove the Original Glass. ↓!Remove the Original Size Detecting Board Cover.
UN3	ATDC Sensor	Swing down No. 1. ↓!Release and swing up the Upper Half of the copier. ↓!Slide out the Imaging Unit. ↓!Remove the Synchronizing Roller Unit.

NOTE

To remove the Original Glass, first remove the Original Scales and then slide the glass to the scale side and remove it.

Details of Readjustments/Resetting Involved In Replacement of RAM Board, Original Size Detecting Board and ATDC Sensor.

÷ When RAM Board is replaced:
Carry out Memory Clear and then make the Tech. Rep. Choice, User's Choice, Security mode, and Adjust settings again.

÷ When Original Size Detecting Board is replaced:
Adjust the Original Size Detecting Board.

÷ When ATDC Sensor is replaced:
Discard the developer which had been used until ATDC Sensor was replaced, reload the Developing Unit with fresh starter, and adjust ATDC.

2-3. MAINTENANCE SCHEDULE

+ To keep the copier in good operating condition, it is recommended that the maintenance jobs described in this schedule be carried out.

PM Parts	Maintenance Schedule (K)		Part No.	Qty	Reference Page
	Cleaning	Replacement			
Paper Take-Up Section					
Paper Take-Up Roll	80	320	1151-3001-01	5	D-19
Synchronizing Roller	80			1	—
Manual Bypass Take-Up Roll	80			1	D-18
Manual Bypass Feed Roll	80			1	D-18
Manual Bypass Separator Roll	80			1	D-18
IR Section					
1st Mirror	80			1	D-20
2nd Mirror	80			1	D-20
3rd Mirror	80			1	D-20
Lens	80			1	D-20
Cooling Fan Filter	80			1	D-20
Scanner, Scanner Rail	80(*1)			1	D-20
Imaging Unit Section					
Starter		160	—	—	—
PC Drum		80	—	1	—
Toner Scattering Prevention Plate	80	320	1174-5222-01	1	D-25
Cleaning Blade		80	1139-5711-17	1	D-26
PC Drum Paper Separator Fingers	80			2	D-25
Ds Positioning Collar (Front)	80	320	1139-5204-01	1	D-25
Ds Positioning Collar (Rear)	80	320	1136-5004-01	1	D-25
Paper Dust Remover	80	160	1139-3253-01	1	D-27
Toner Antispill Mylar	80			1	D-26
Magnet Roller Lower Filter	80			1	D-26
Pre-Image Transfer Upper Guide Plate	80			1	D-26
PC Drum Charge/Image Transfer Coronas/Transport Unit					
PC Drum Charge Corona Housing	80			1	D-28
PC Drum Charge Corona Comb Electrode		320	1139-4253-02	1	D-28
PC Drum Charge Corona Grid Mesh	80			1	D-28
Image Transfer/Paper Separator Corona Housing	80			1	D-29
Image Transfer/Paper Separator Corona Wire		80	1075-0765-01	2	D-29
Pre-Image Transfer Lower Guide Plate	80			1	D-29

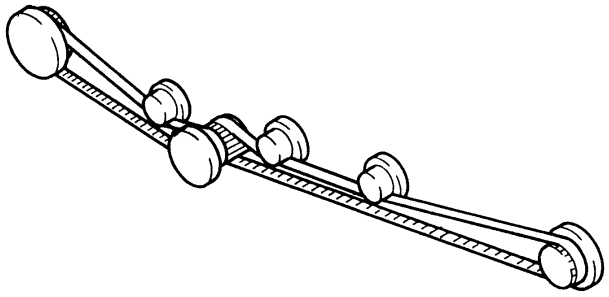
PM Parts	Maintenance Schedule (K)		Part No.	Qty	Reference Page
	Cleaning	Replacement			
Ozone Filter		80	1151-4509-01	1	D-30
Main Erase	80			1	D-28
Suction Belt, Deck	80			4	D-30
Fusing Section					
Pre-Fusing Guide Plate	80			1	D-30
Thermistor	80	320	9372-2610-11	1	D-31
Fusing Thermoswitch	80			1	D-31
Upper Fusing Roller	80	320	1177-5521-02	1	D-31
Lower Fusing Roller	80	320	1174-5522-01	1	D-32
Upper Separator Finger	80	320	1054-4753-01	4	D-31
Lower Separator Finger	80			5	D-32

NOTE
K=1,000 copies
This information is subject to change without notice.
Clean at 80K, based on Total Counter.
Replace at 320K, based on the PM Counter

2-4. BELT INSTALLATIONS

+ Rear View

Drive/Suction Unit



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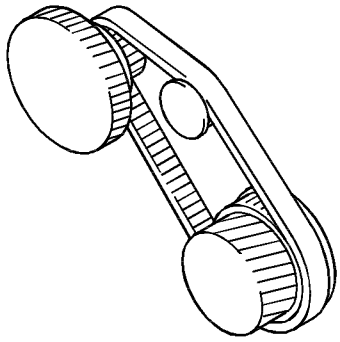
PC Drive



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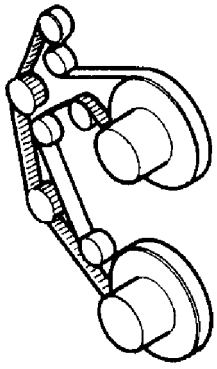
Paper Take-Up Unit



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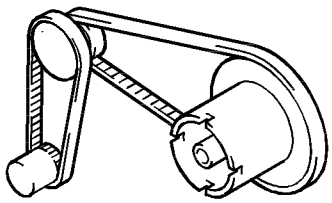
Scanner



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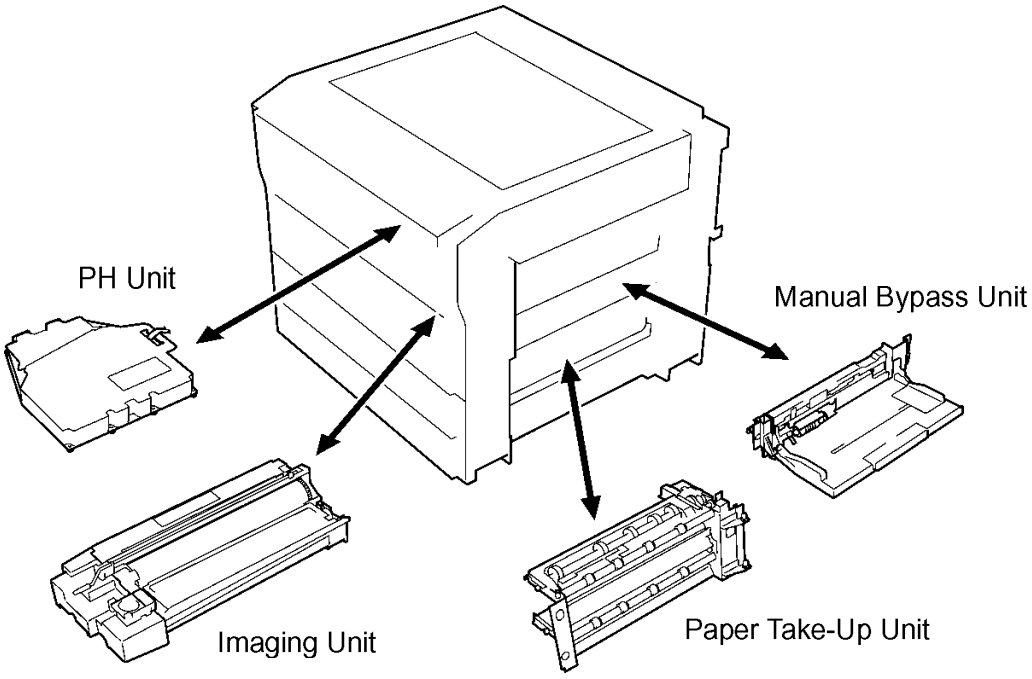
2-5. REMOVAL OF UNITS



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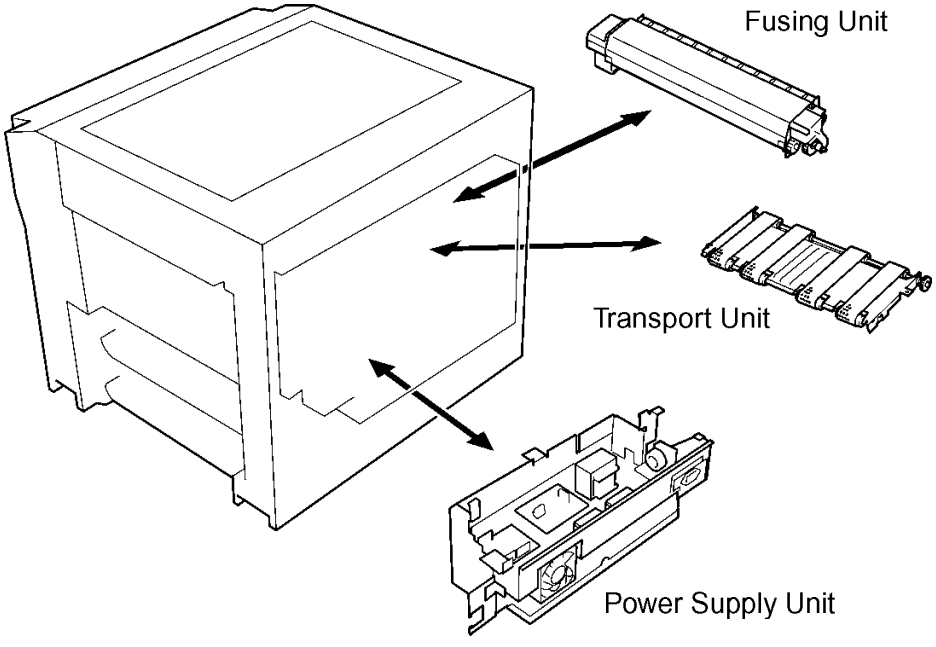

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(1) Removal of the Manual Bypass Unit

Remove the Manual Bypass Unit after the Right Door, Right Cover and Middle Right Cover have been removed.

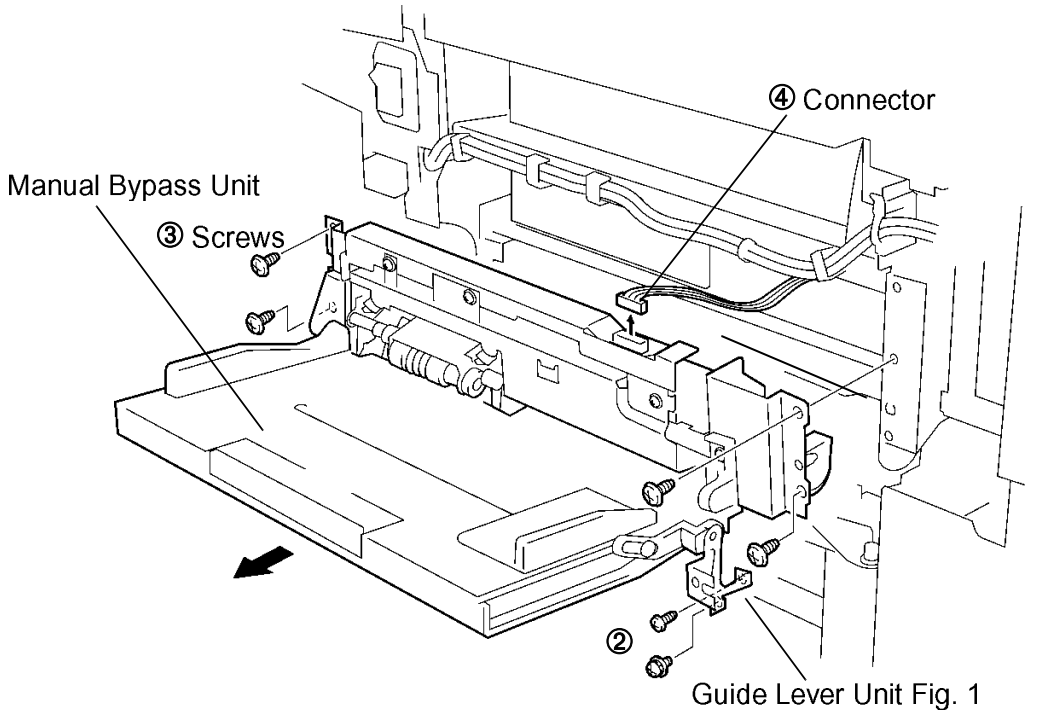
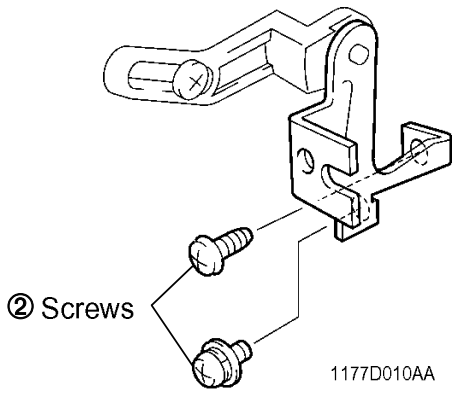


Fig. 1 Removal of the Guide Lever Unit



(2) Removal of the Paper Take-Up Unit

Remove the Rear Cover, Lower Rear Cover, and Manual Bypass Unit and slide out the drawer in question before attempting to remove the Paper Take-Up Unit.

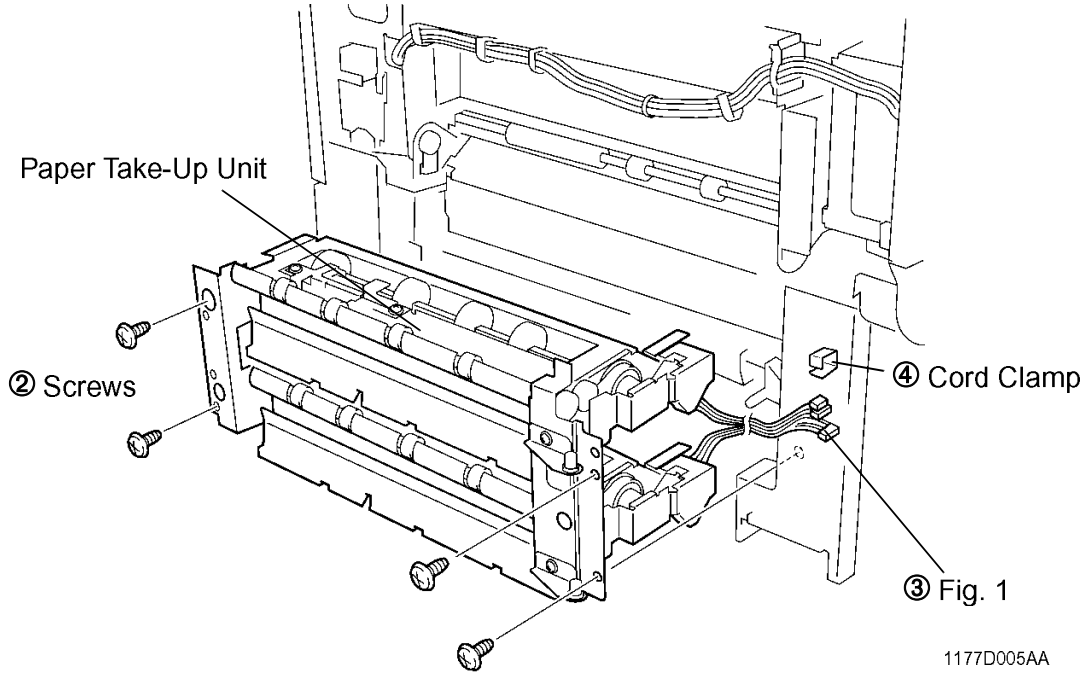
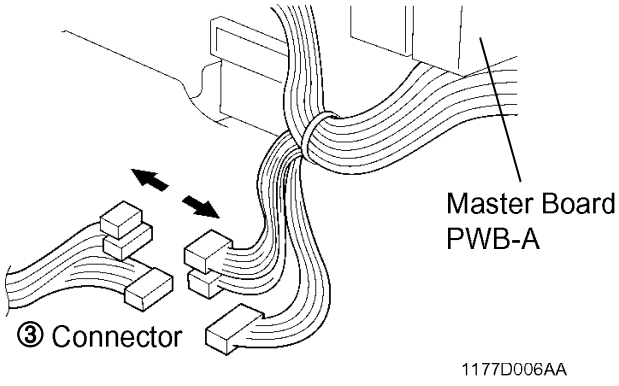


Fig. 1 Removal of the Connector



NOTE

When mounting the Paper Take-Up Unit, secure the harness of the hookup connector with the cord clamp.

(3) Removal of the Imaging Unit

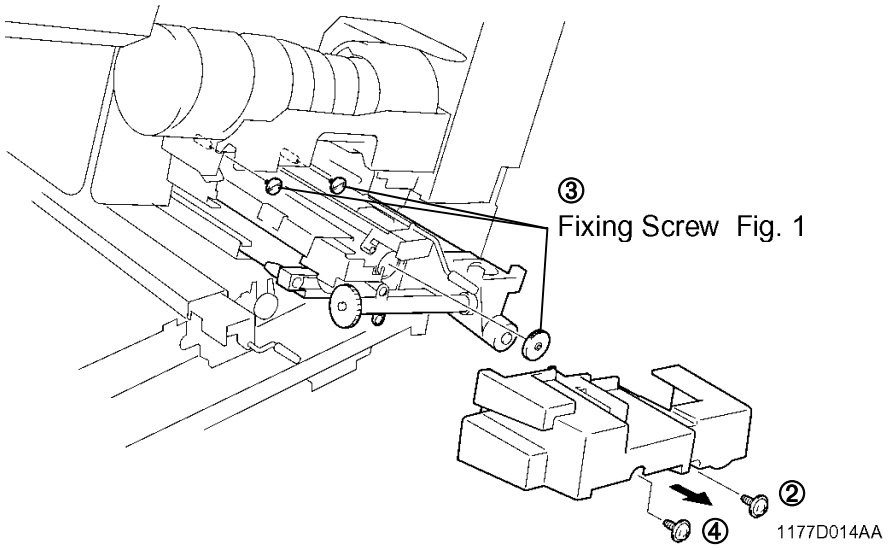
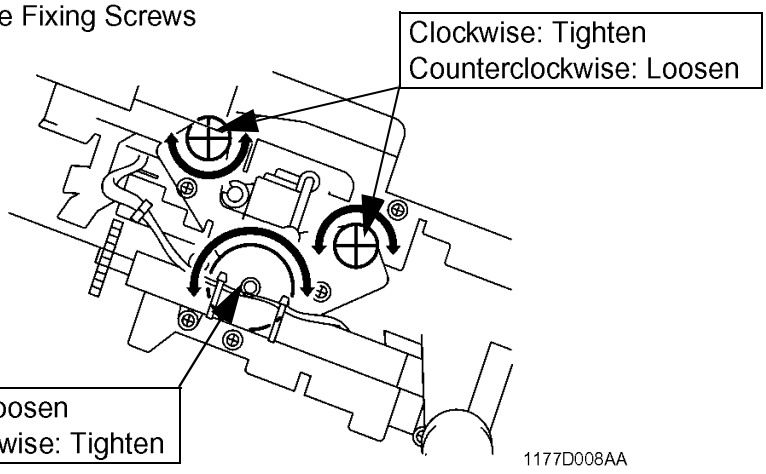
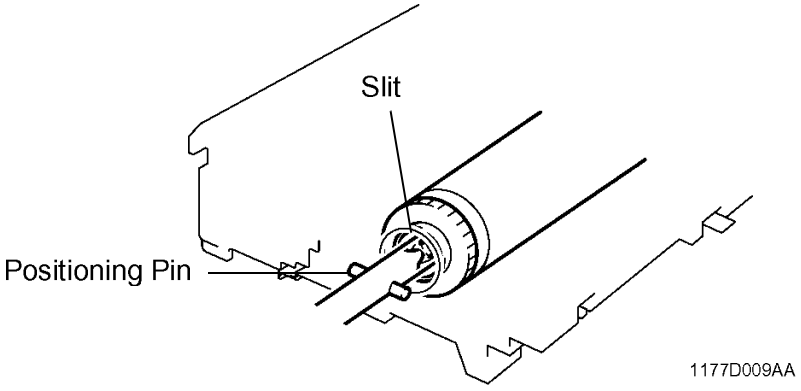


Fig. 1 Removal of the Fixing Screws



NOTE

When the Imaging Unit is installed, the positioning pins should fit in the indentations in the flange of the PC Drum. (The fixing screws should also be tightened firmly.)
If the positioning pins are not properly aligned with the indentations in the PC Drum flange, turn the end of the PC Drum until they fit into position.



(4) Removal of the PH Unit

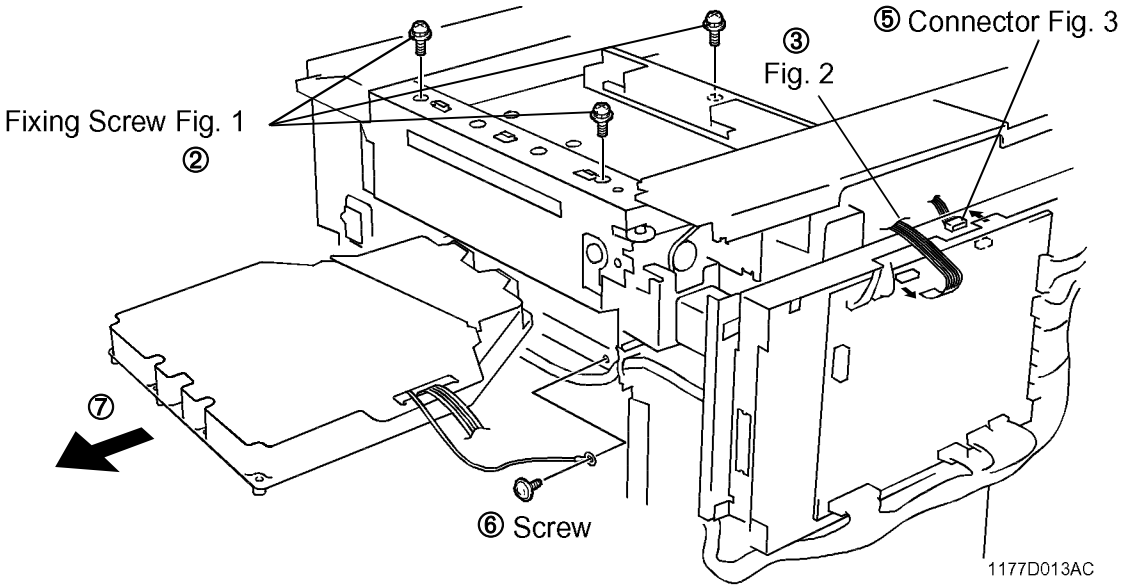
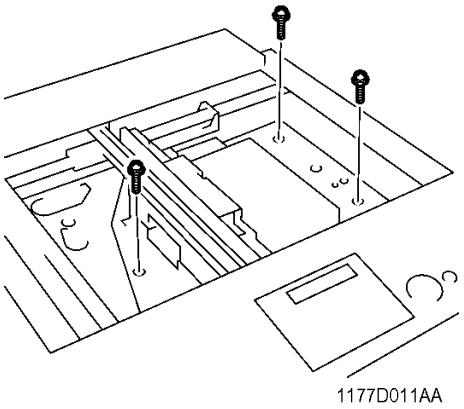


Fig. 1 Removal of the IR Fixing Screws



Paper take-up end: Both sides (at 2 places)
Paper exit end: Center (at 1 place)

NOTE
Use a long screwdriver to remove the screws.

Fig. 2 Removal of the Flat Cable Clamp

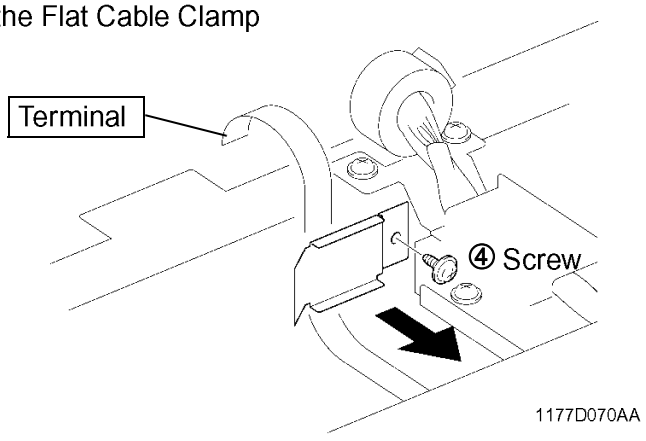
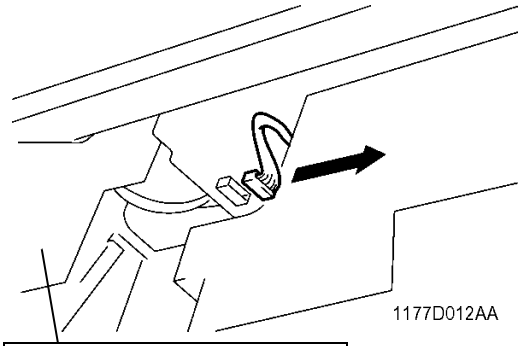


Fig. 3 Removal of the Connector



Connector position:
Under the duct for the Ventilation Fan Motor.

Ventilation Fan Motor M9

NOTE
NEVER touch the terminal of the flat cable.

(5) Removal of the Transport Unit

After the Fusing Unit has been removed, remove the Transport Unit.

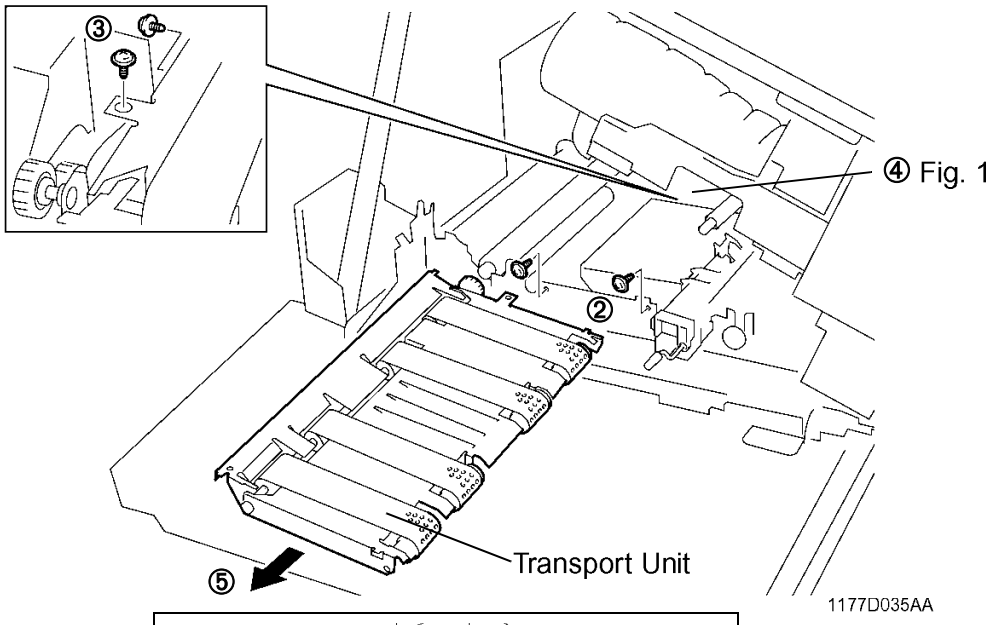
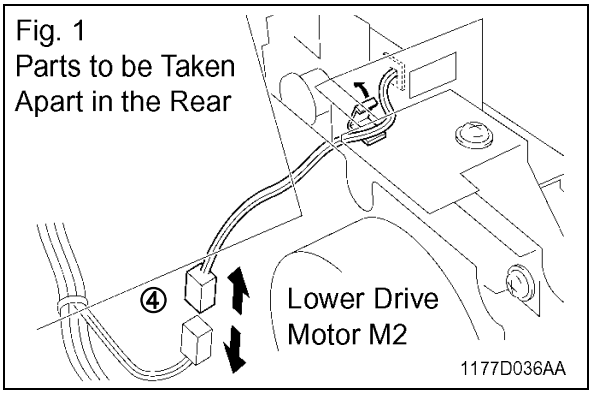
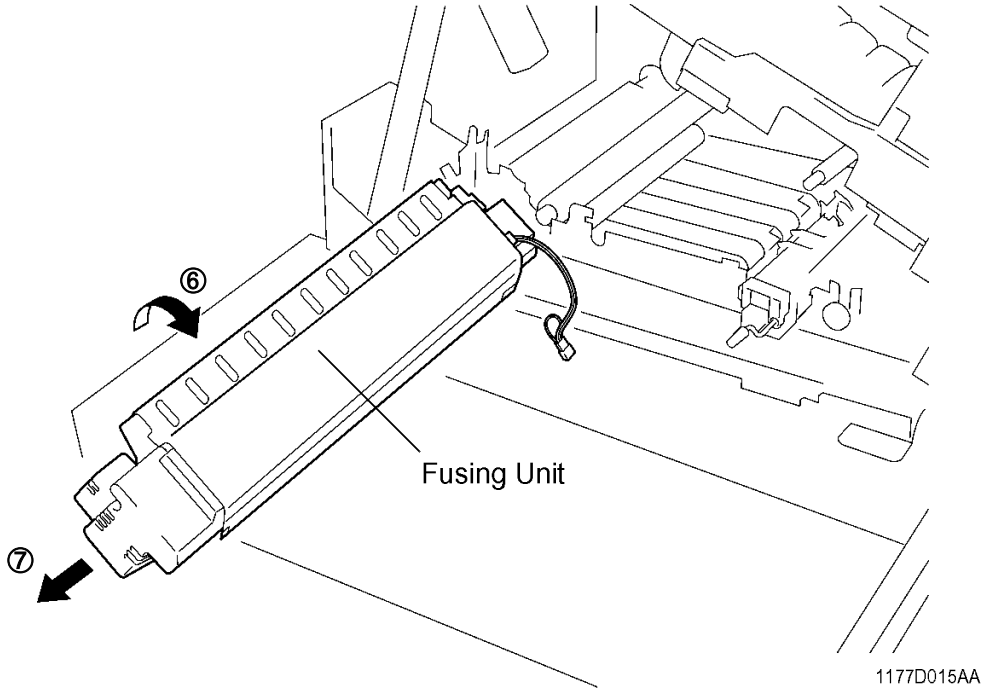


Fig. 1
Parts to be Taken Apart in the Rear

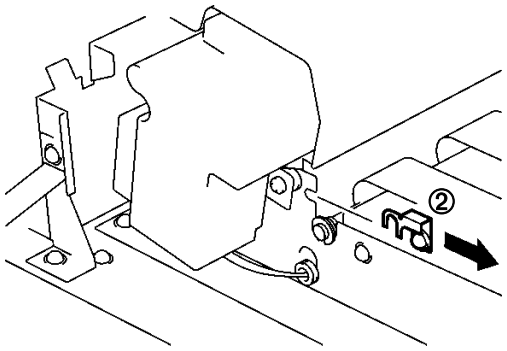


NOTE
Use care not to lose the springs (front and rear) installed under the guide plate.

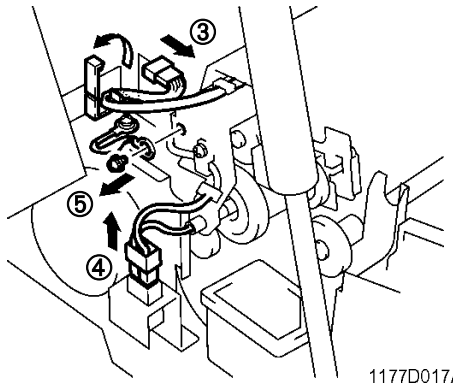
(6) Removal of the Fusing Unit



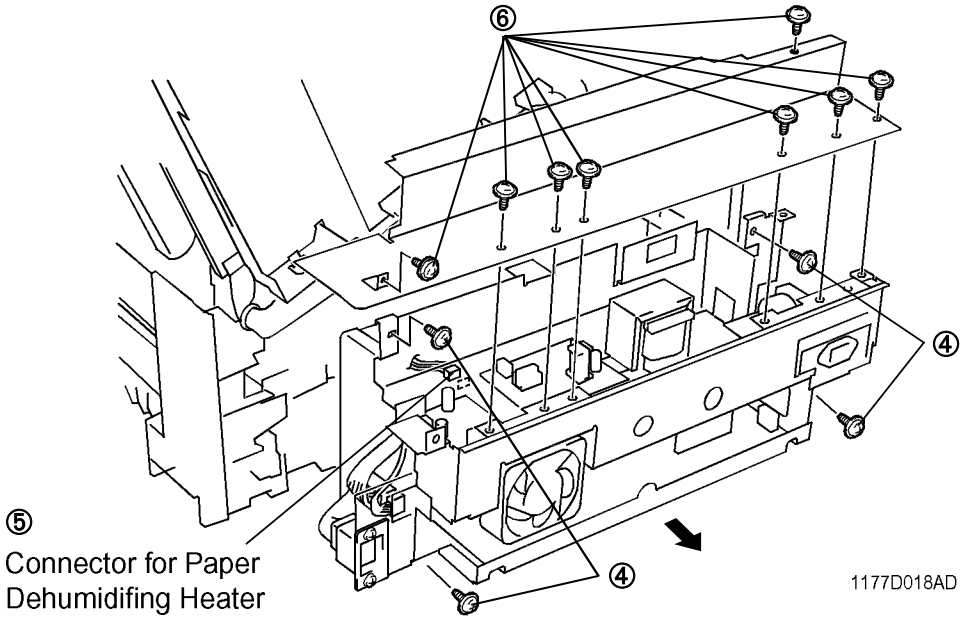
Removal of the Fusing Unit Locking Plate

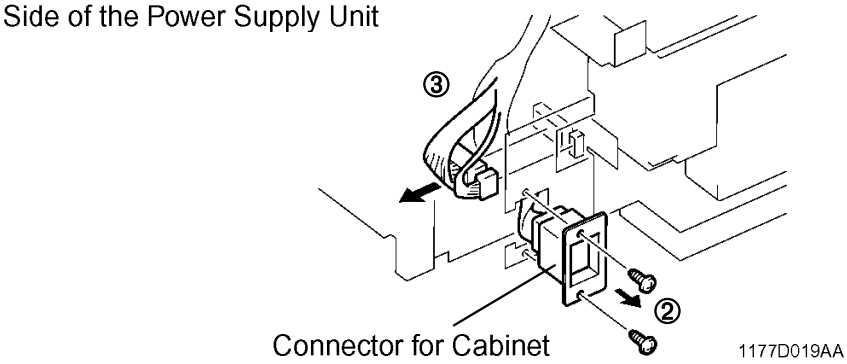


Parts to be Taken Apart in the Rear

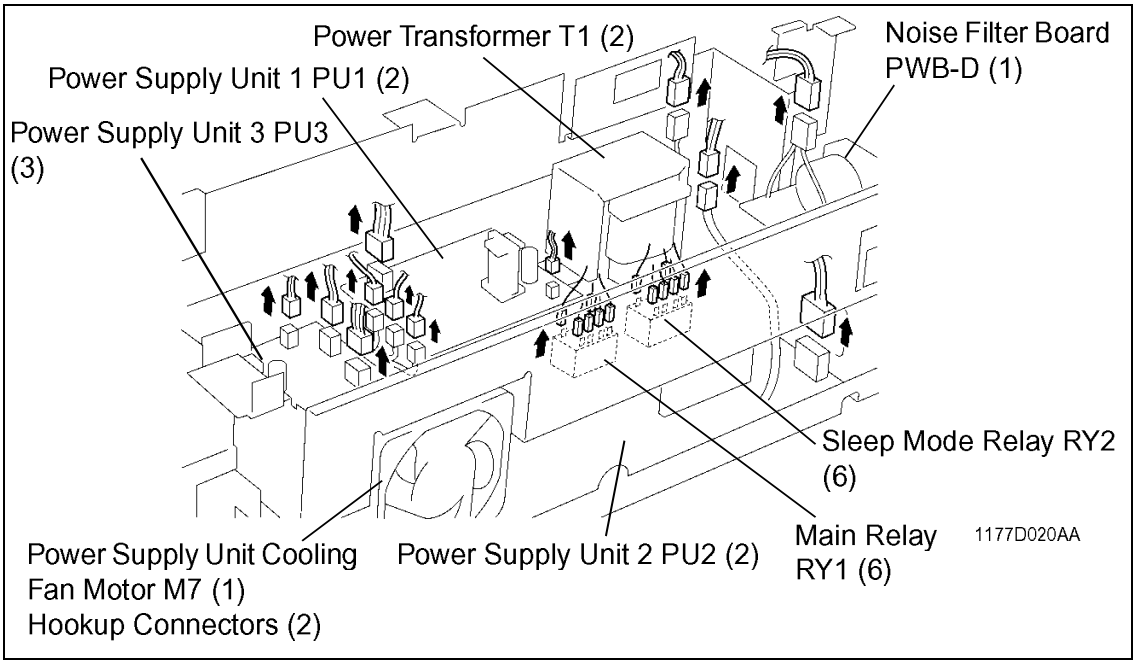


(7) Removal of the Power Supply Unit

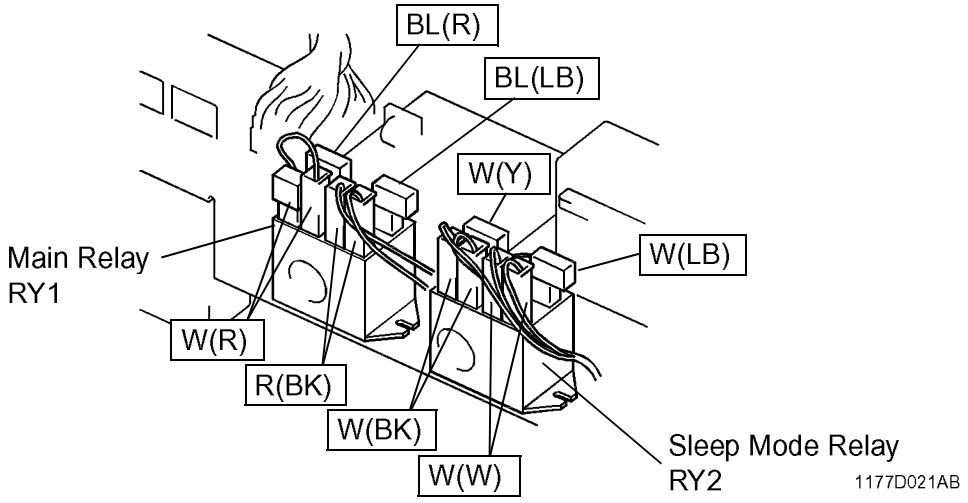




Remove of the Connectors: Inside of "( )" is descrived number of connectors.

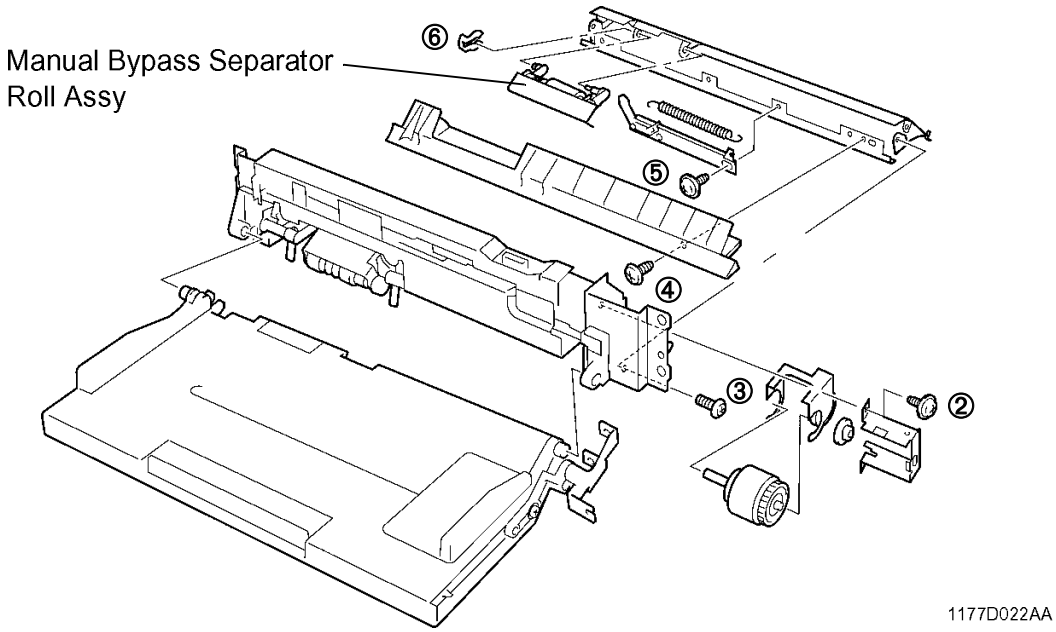


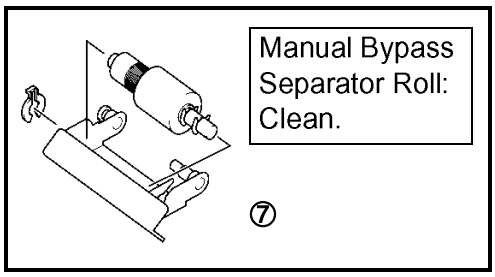
Where Relays are Connected



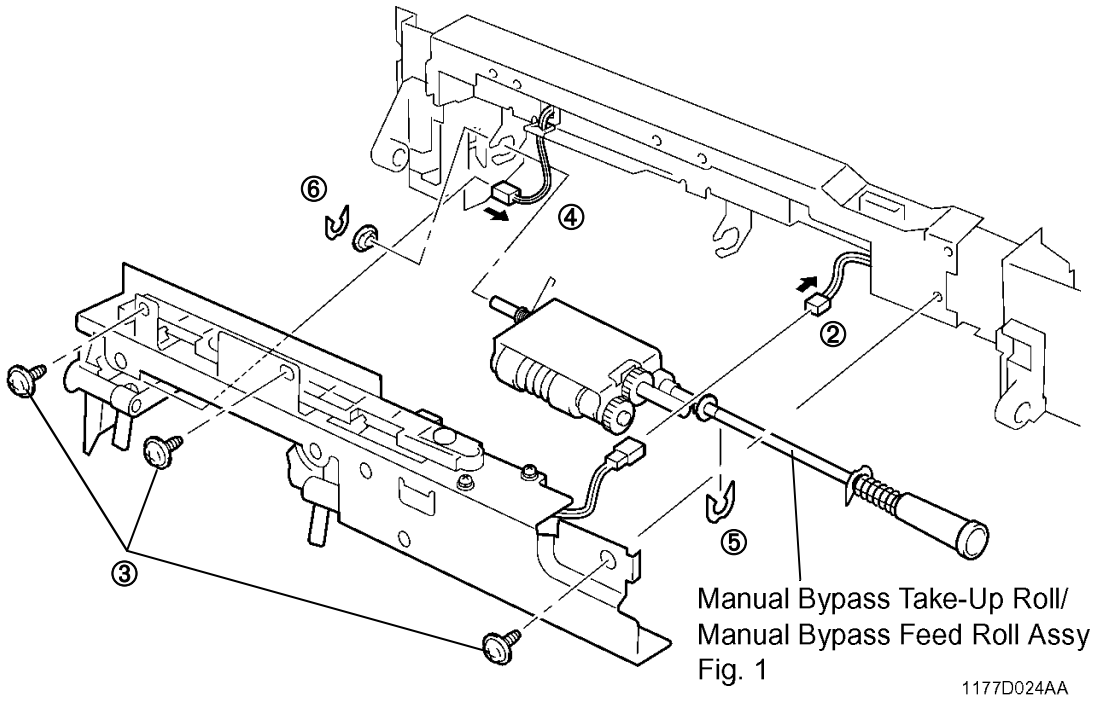
2-6. PAPER TAKE-UP SECTION

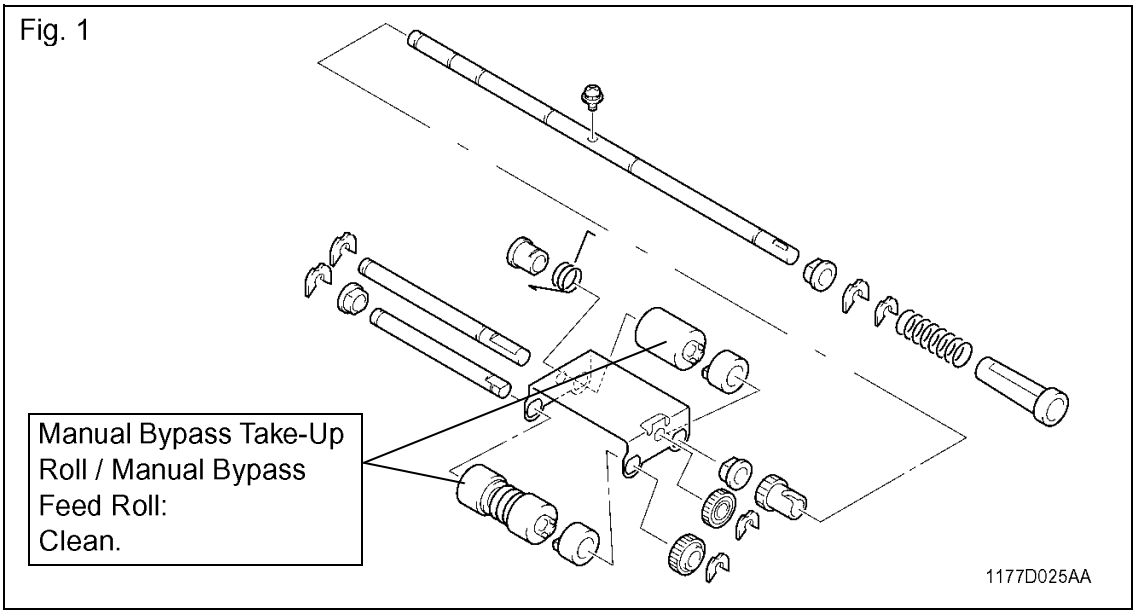
(1) Disassembly of the Manual Bypass Unit
Replacement of the Manual Bypass Separator Roll Assy



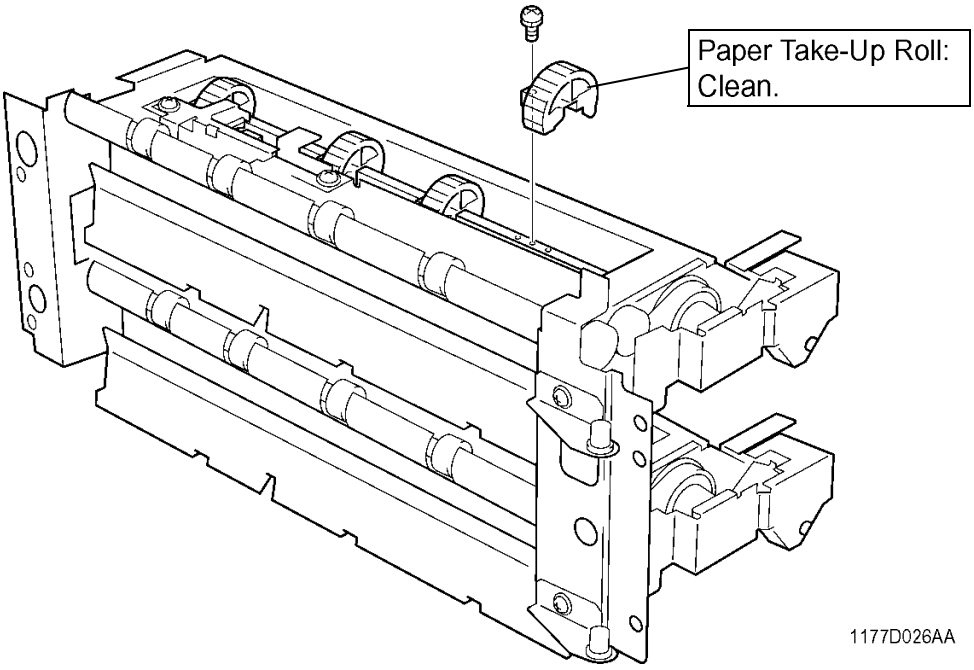


Cleaning of the Manual Bypass Take-Up Roll and Manual Bypass Feed Roll





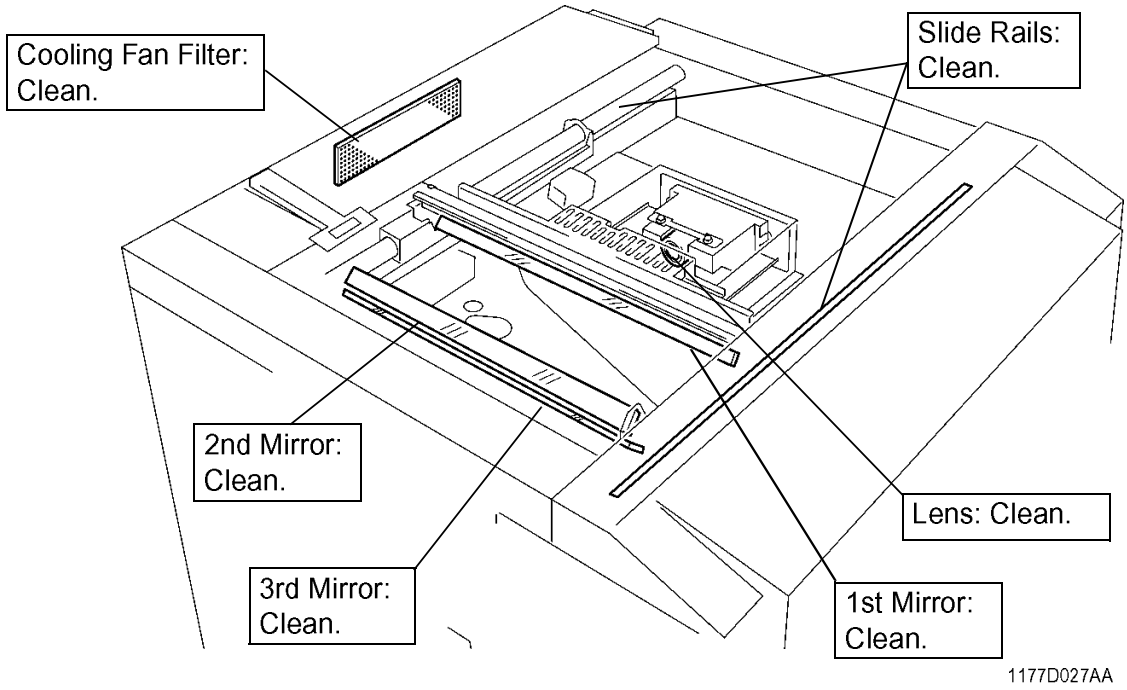
(2) Disassembly of the Paper Take-Up Roll



2-7. IR SECTION

NOTE
To remove the Original Glass, first remove the Original Scales and then slide the glass to the scale side and remove it. (Do not remove the Original Glass positioning bracket.)

(1) Cleaning of the 1st to 3rd Mirrors, Slide Rails, Lens and Cooling Fan Filter



(2) Disassembly of the IR Section

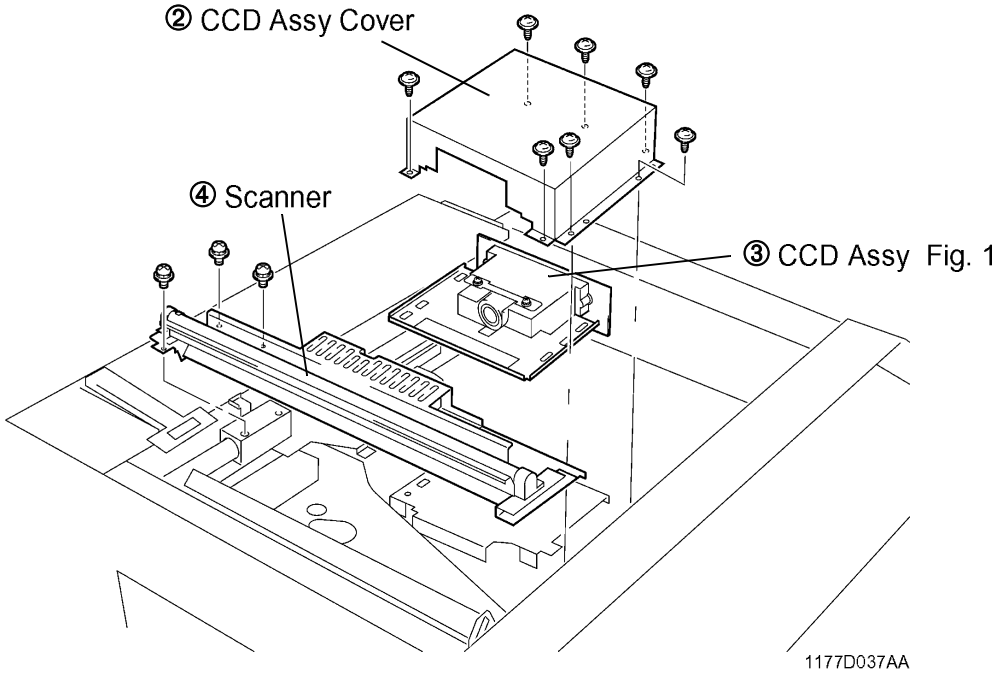
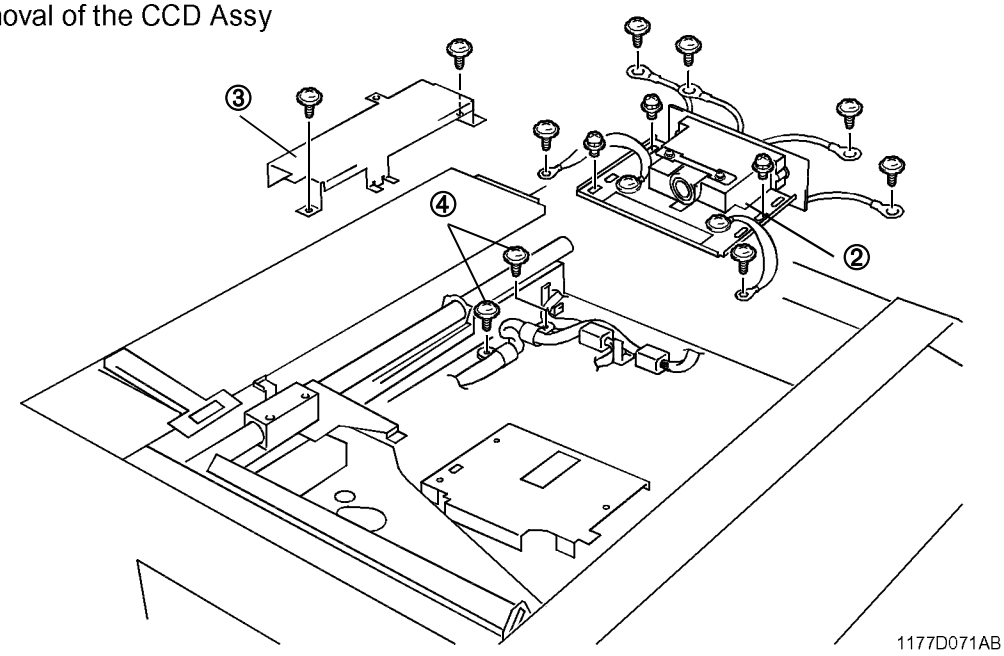
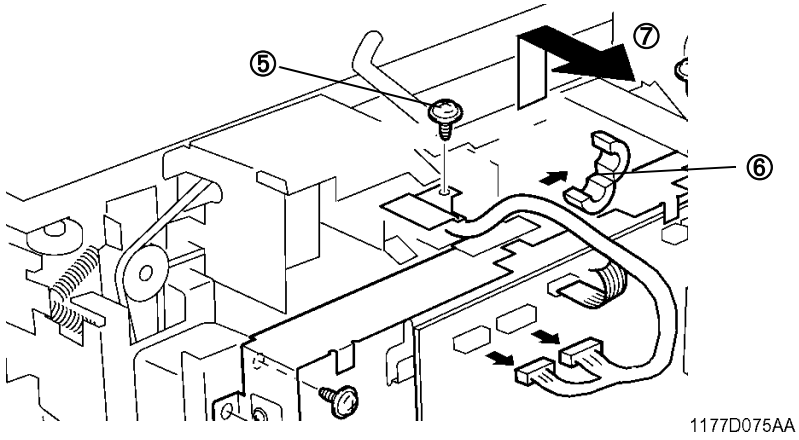


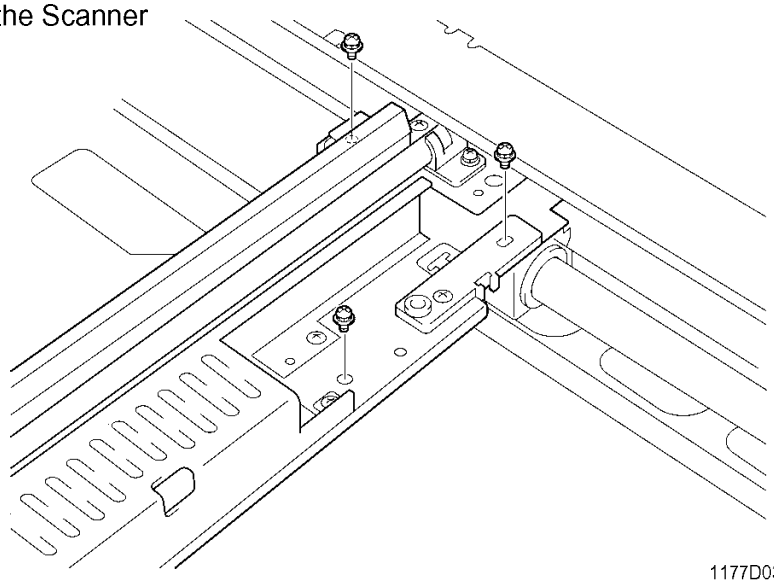
Fig. 1
Removal of the CCD Assy



Parts to be Taken Apart in the Rear



Removal of the Scanner



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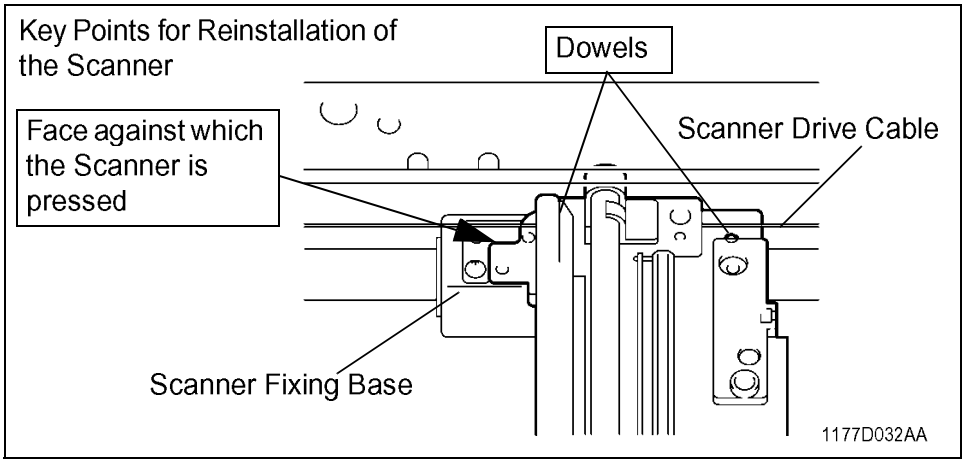
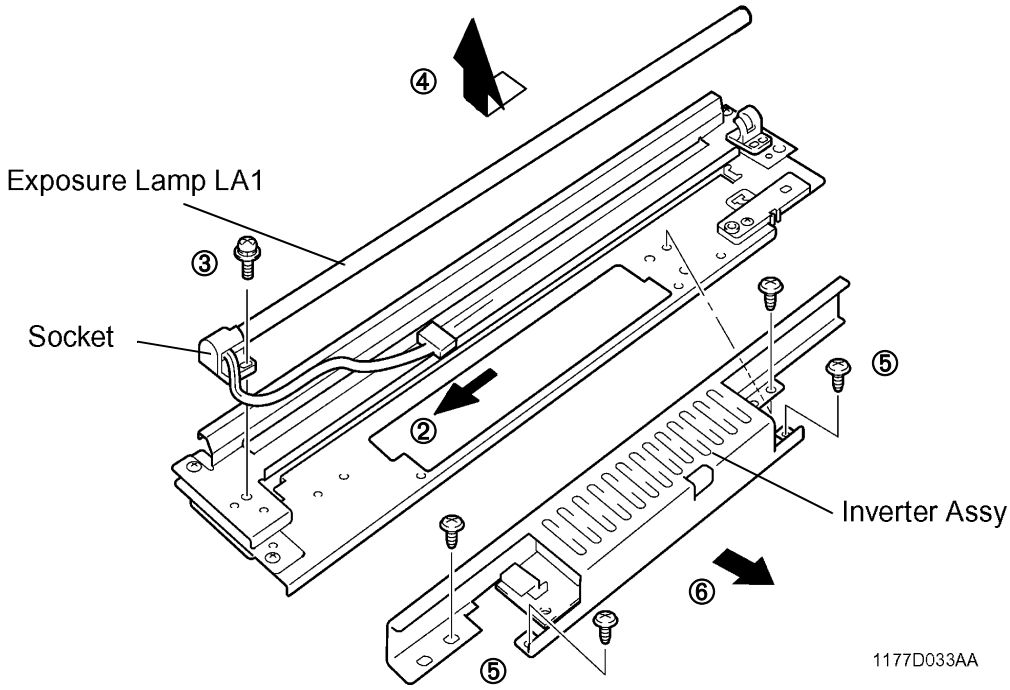
Key Points for Reinstallation of the Scanner



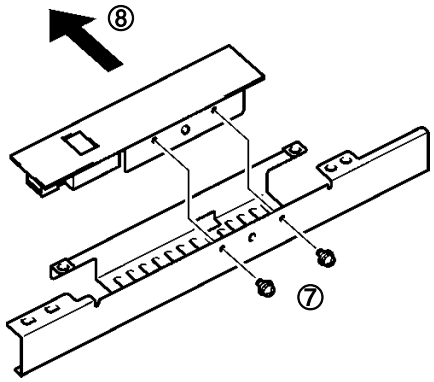
NOTE

When reinstalling the Scanner, let the dowels on the Scanner Fixing Base fit into the Scanner positioning holes and slightly turn the Scanner clockwise so that the rear left end of the Scanner is pressed tightly into position in the fixing base. Use care not to allow the Scanner Drive Cable to be caught in the mechanism.

(3) Removal of the Exposure Lamp and Inverter



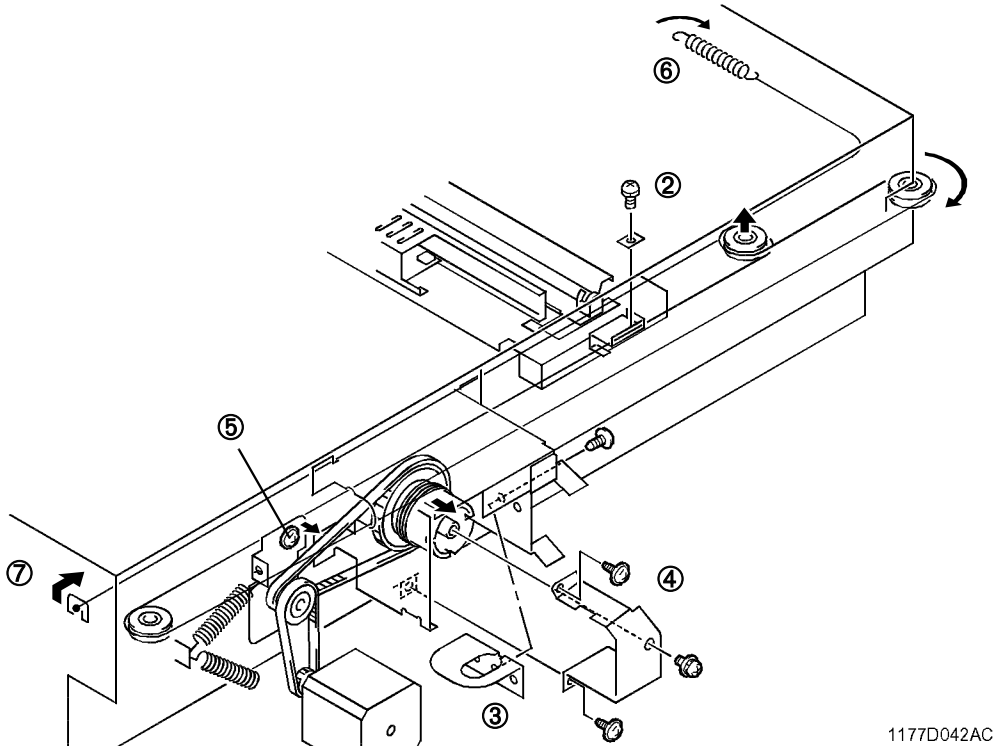
Disassembly of the Inverter Assy



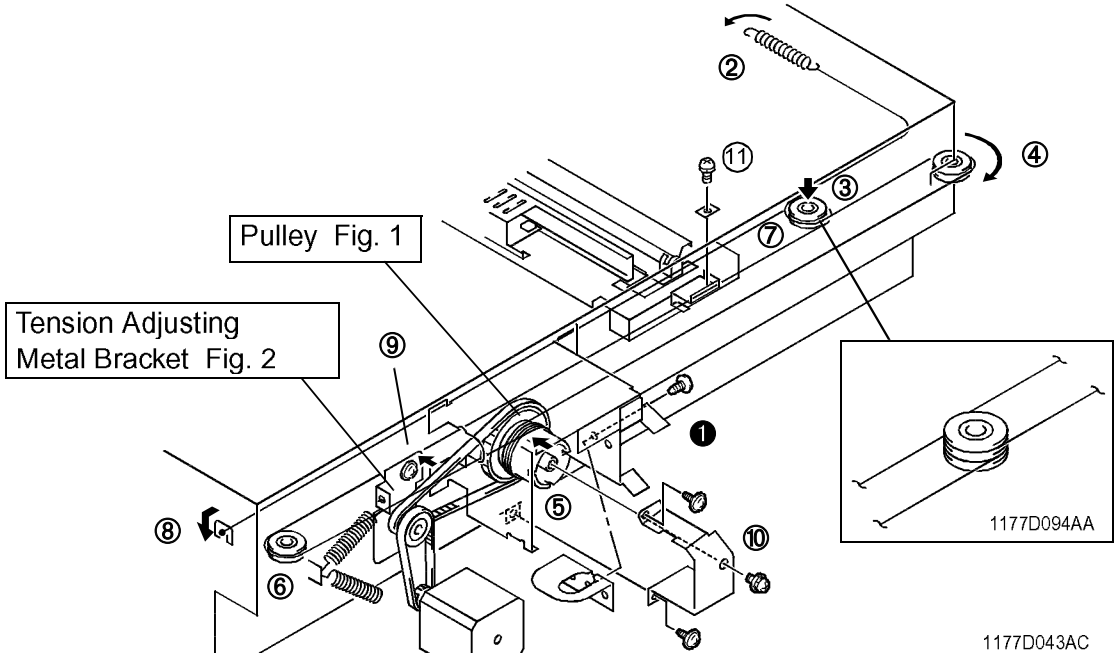
NOTE

When removing the Exposure Lamp, be sure to hold onto its socket.
When removing the PWB from the Inverter Assy, use care not to touch its pattern surface.

(4) Removal of the Drive Cable



(5) Winding of the Drive Cable



NOTE

Start winding the Scanner Drive Cable with the spring end. (When winding the cable, ensure that the cable has no slack.)

To hook the bead, pinch the cable with lineman's pliers and try to hook it while turning the pulley counterclockwise.

Winding the Cable Around the Pulley and Adjusting Tension in the Timing Belt

Fig. 1

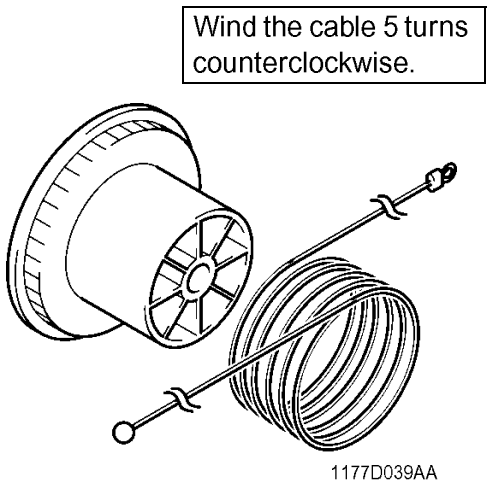
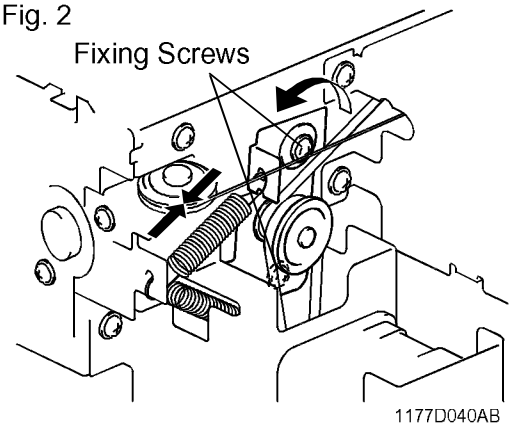


Fig. 2

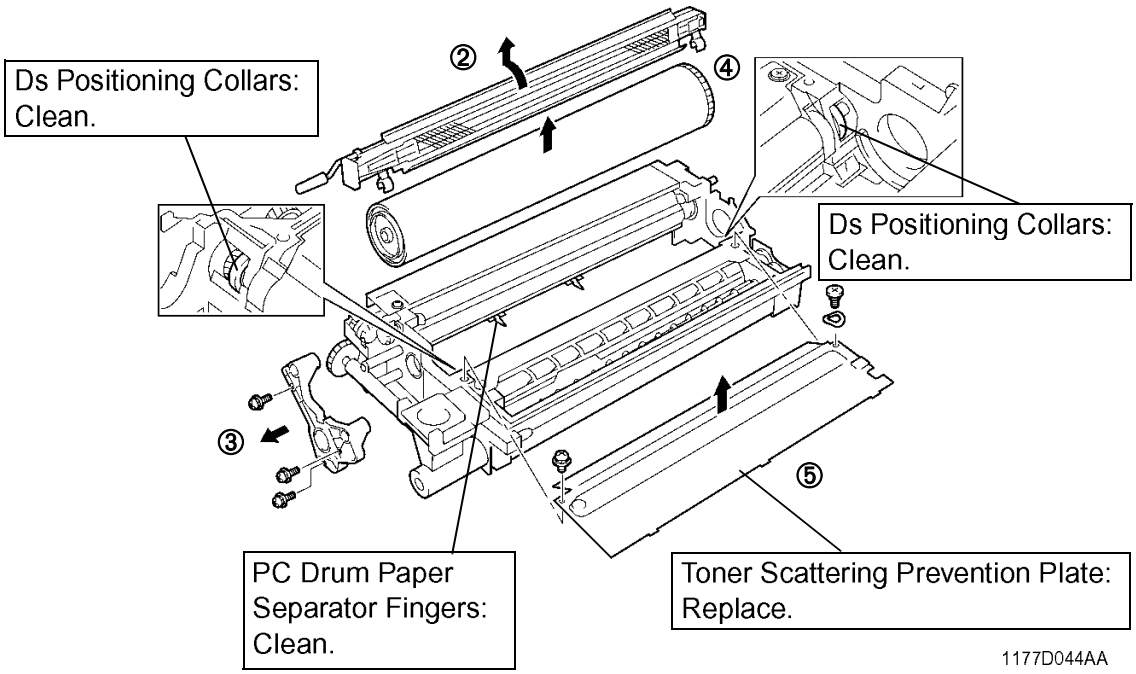


NOTE

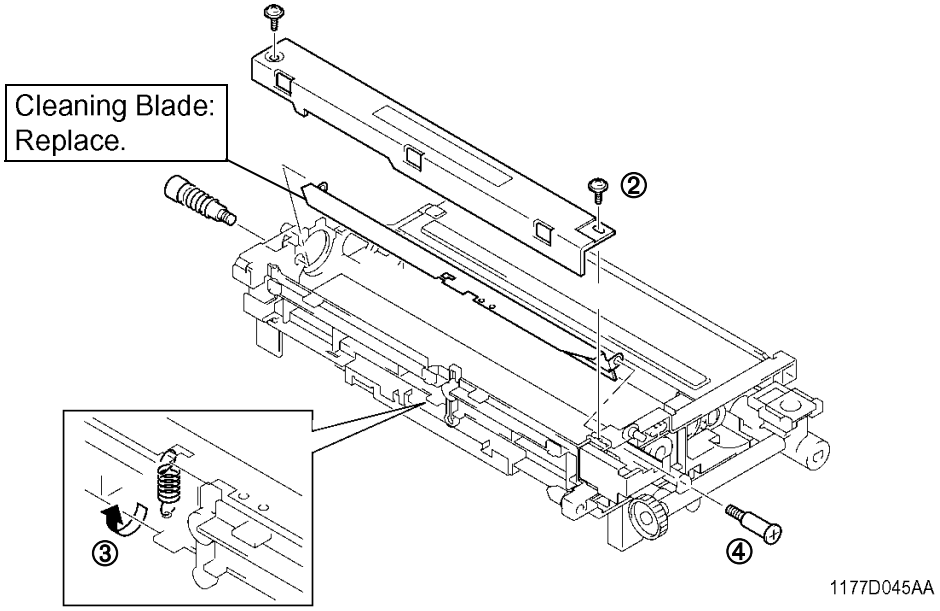
Temporarily loosen the fixing screw and find a position at which the Tension Adjusting Metal Bracket is stopped by the tension of the spring. Then, holding the Tension Adjusting Metal Bracket in that position, tighten the fixing screw again.

2-8. IMAGING UNIT SECTION

(1) Cleaning of the PC Drum Paper Separator Fingers and Ds Positioning Collars Replacement of the PC Drum and Toner Scattering Prevention Plate



(2) Replacement of the Cleaning Blade



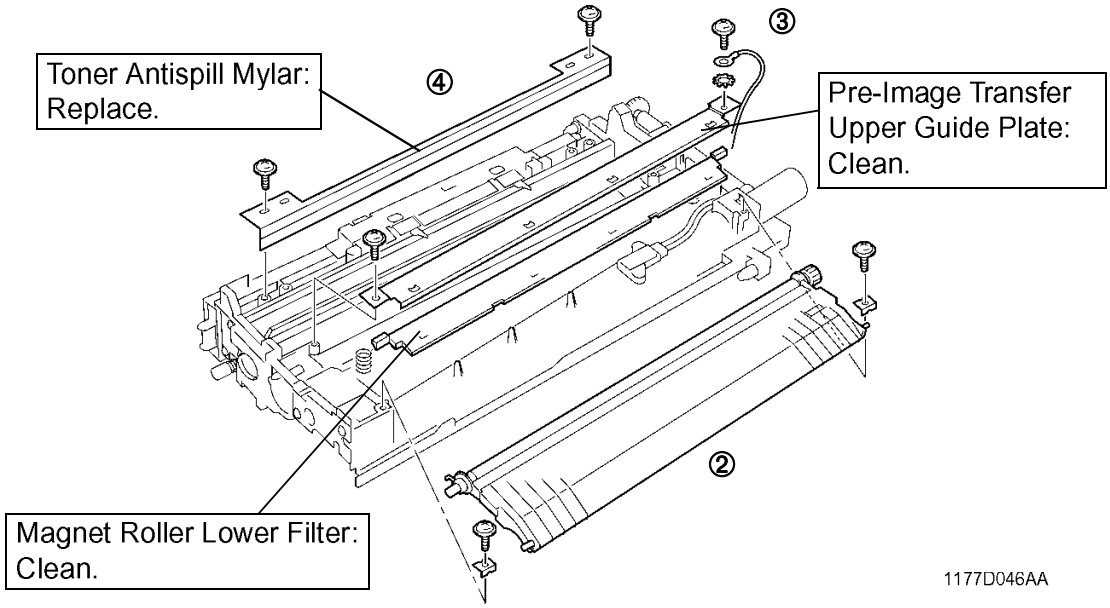
NOTE

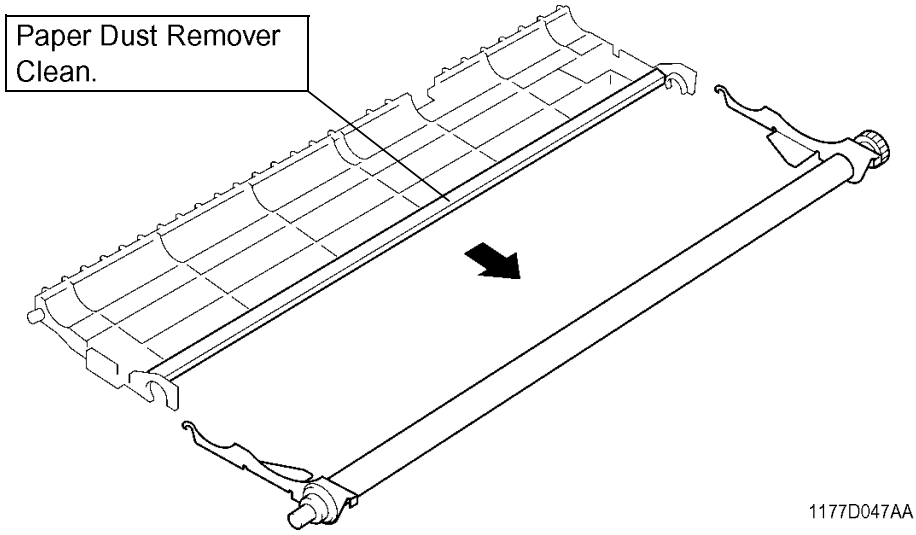
When reinstalling the Cleaning Blade, do not forget to rehook the spring.

Applying Toner to Cleaning Blade

1. Apply toner to the entire surface of the Cleaning Blade.
   (Do not forget to coat the surfaces on both ends.)
2. Install the PC Drum.
3. Apply a thin coat of toner to the PC Drum.
4. Turn the PC Drum 1/2 turns backward, then turn it one complete turn forward.

(3) Cleaning of the Pre-Image Transfer Upper Guide Plate, Magnet Roller Lower Filter and Paper Dust Remover Replacement of the Toner Antispill Mylar





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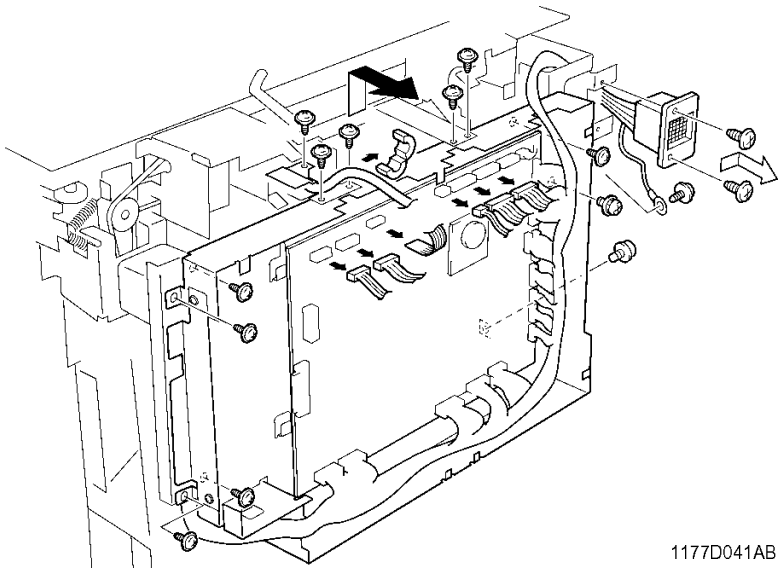
(4) Cleaning of the Main Erase Lamp

1. Removal of the Master Board.



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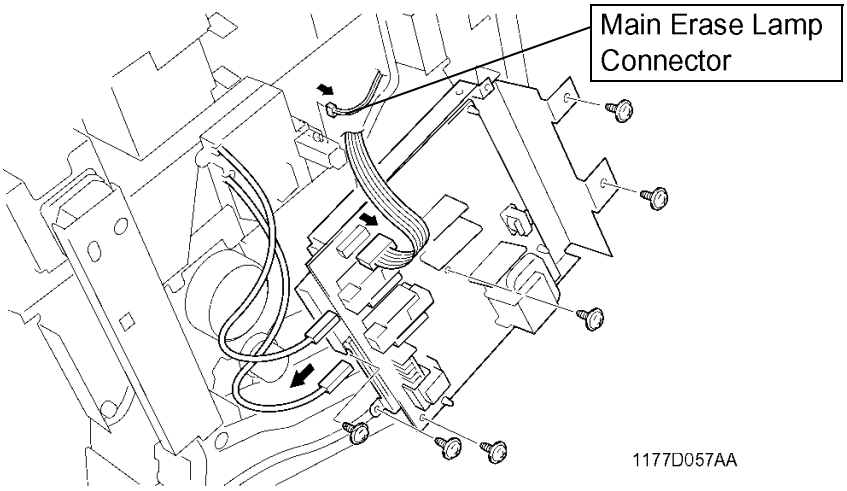
2. Removal of the High Voltage Unit.



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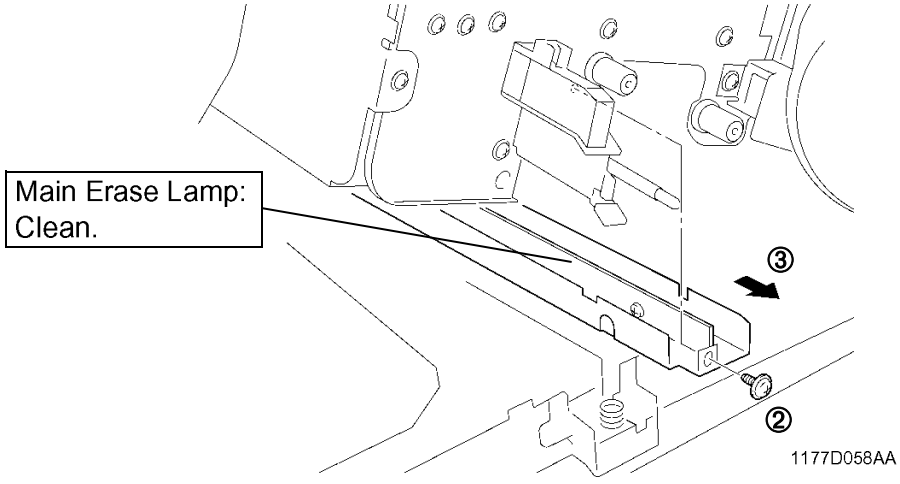
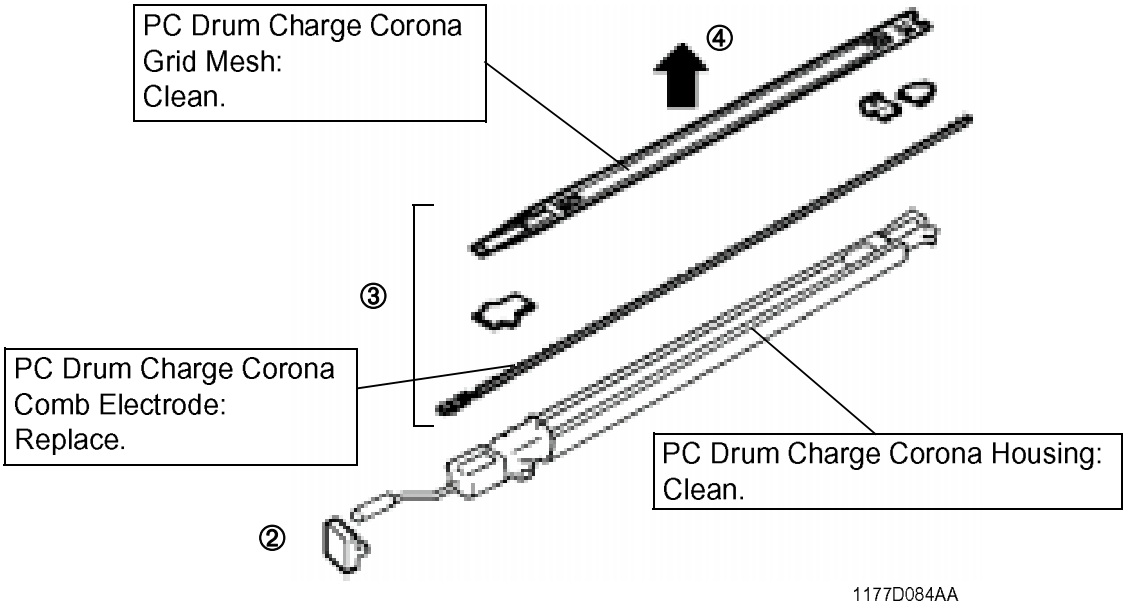
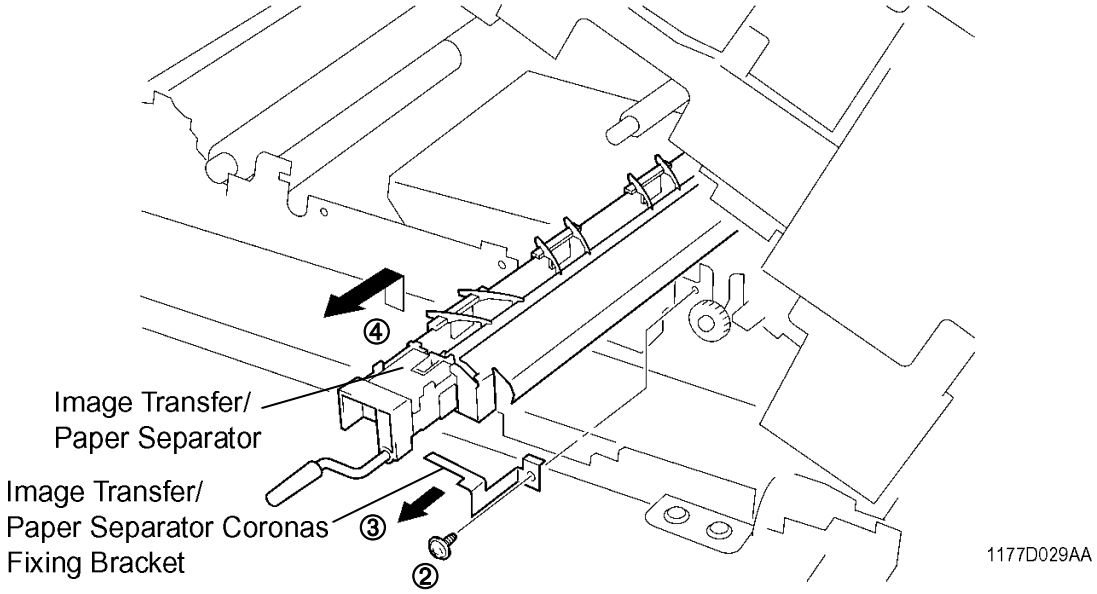
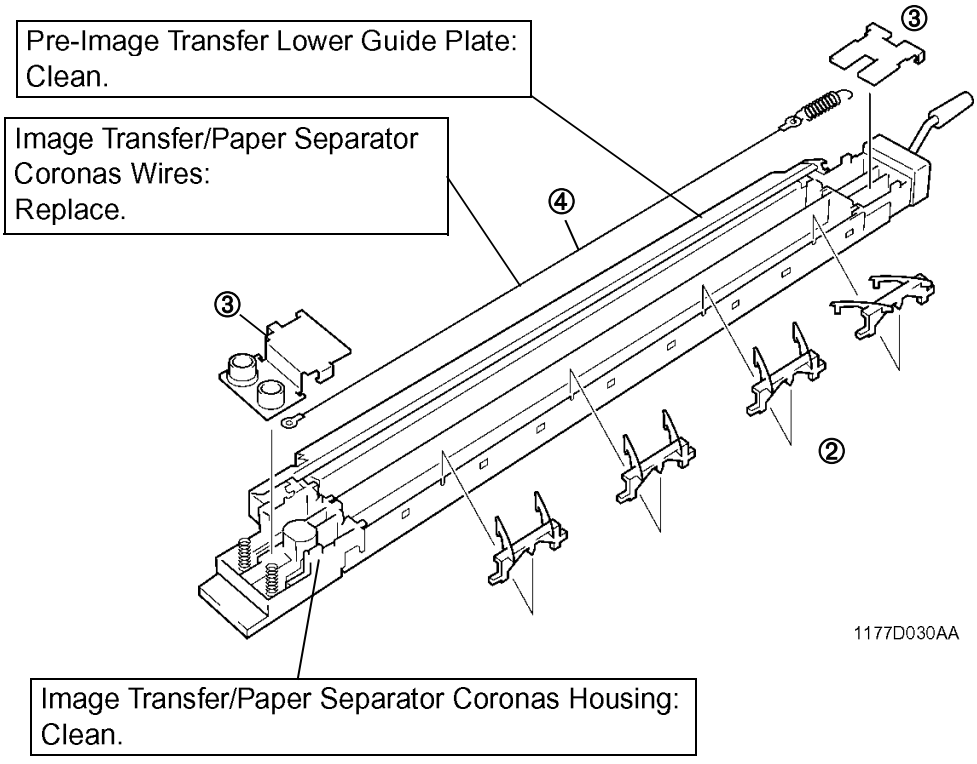


(5) Cleaning and Replacement of the PC Drum Charge Corona Assy

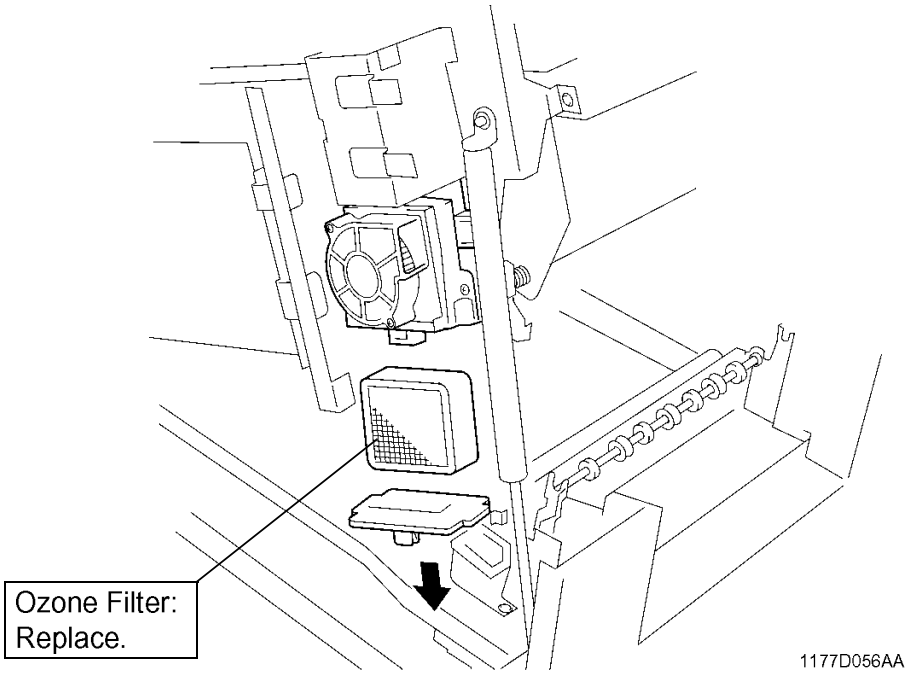


(6) Cleaning and Replacement of the Image Transfer/Paper Separator Corona Assy
Cleaning of the Pre-Image Transfer Lower Guide Plate



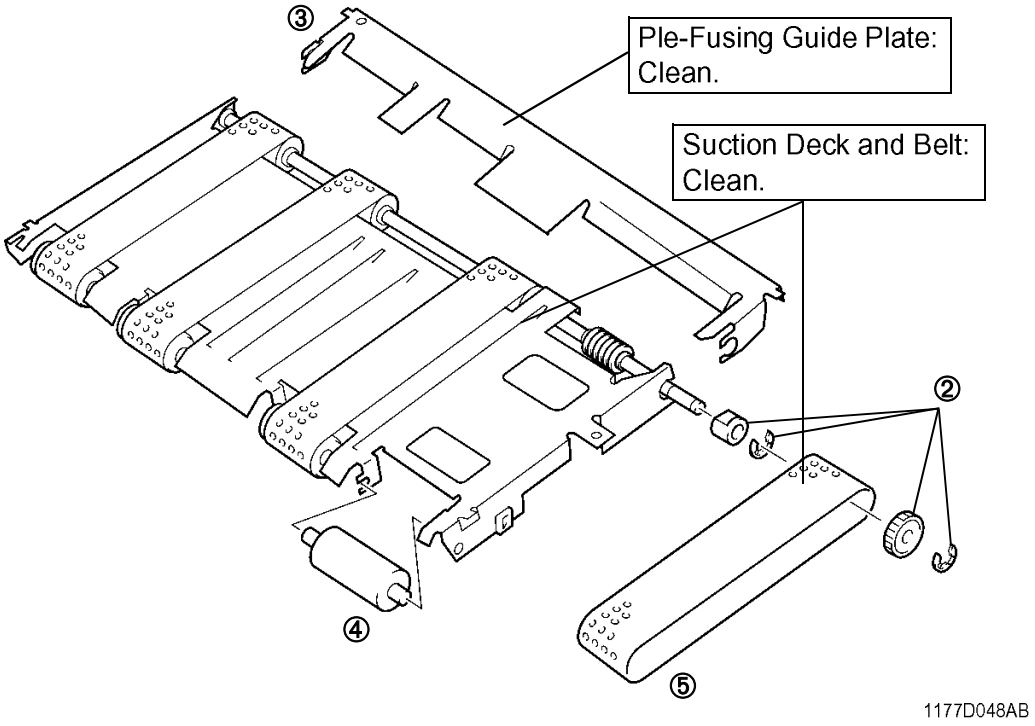


(7) Replacement of the Ozone Filter



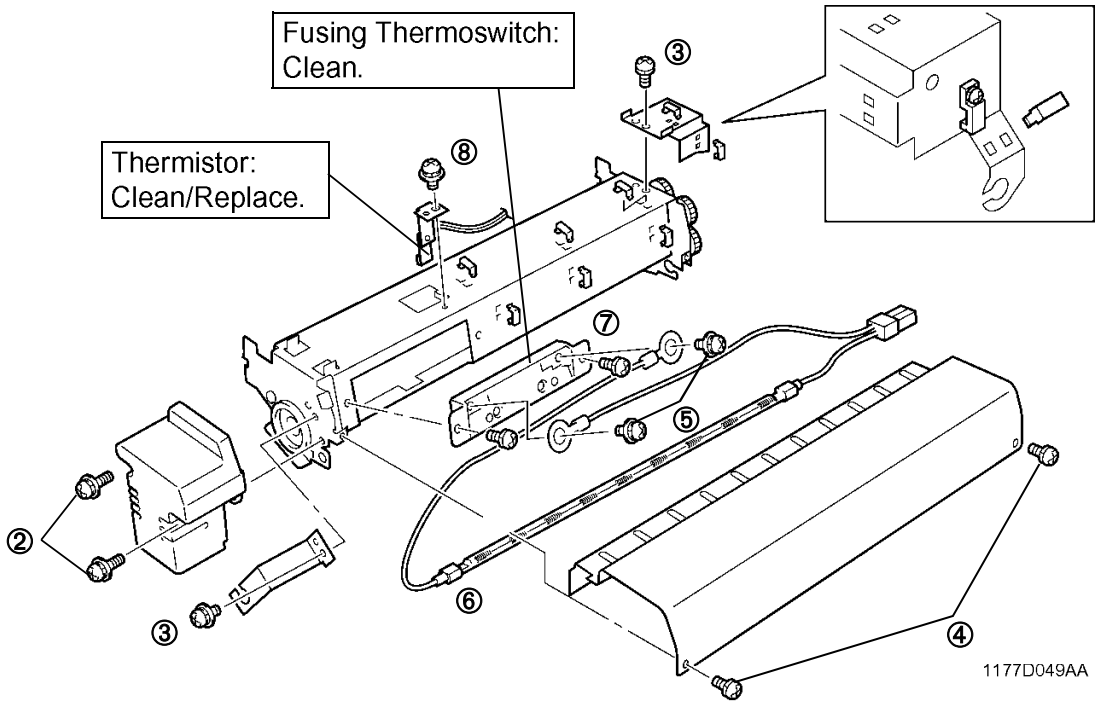
2-9. TRANSPORT SECTION

(1) Cleaning of the Suction Deck, Belt and Ple-Fusing Guide Plate

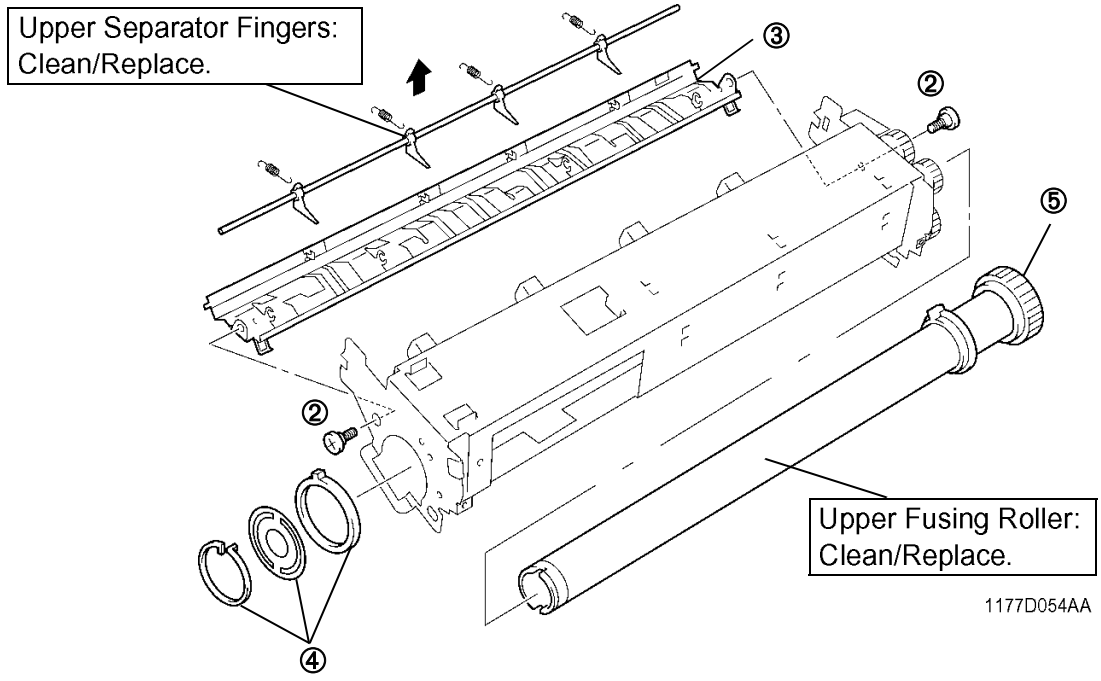


2-10. FUSING SECTION

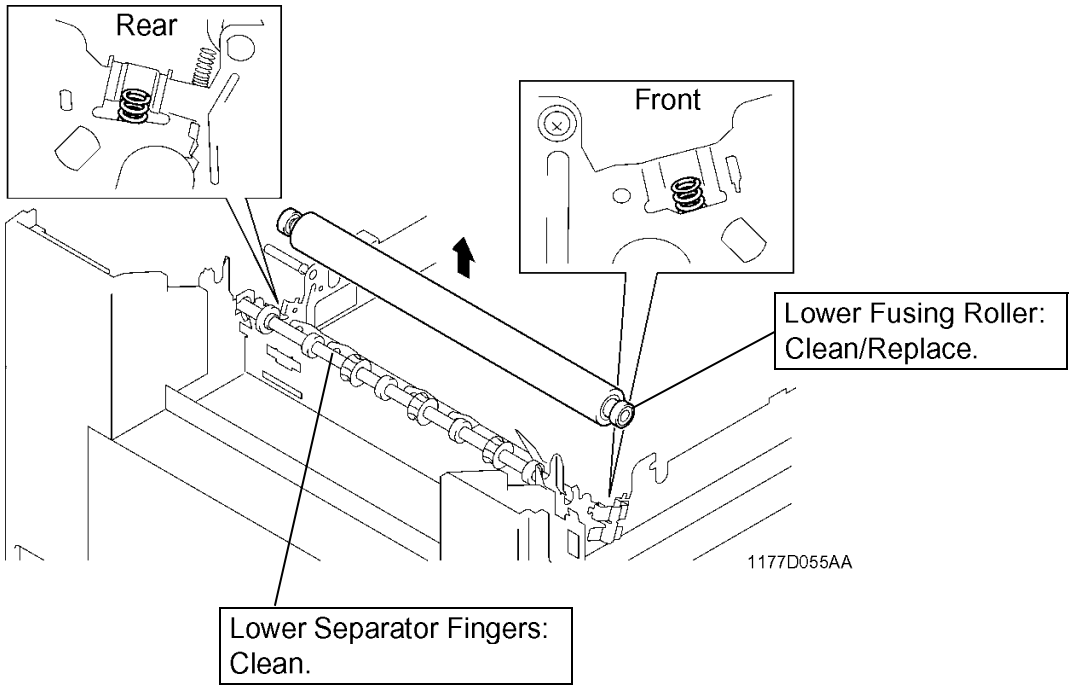
(1) Cleaning and Replacement of the Thermistor
Cleaning of the Fusing Thermoswitch



(2) Cleaning and Replacement of the Upper Fusing Roller
Cleaning and Replacement of the Upper Separator Fingers



(3) Cleaning and Replacement of the Lower Fusing Roller
Cleaning of the Lower Separator Fingers

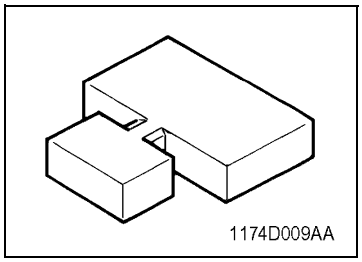


NOTE
When installing the springs under the Lower Fusing Roller, use care not to confuse them (front side: white paint; rear side: red paint).

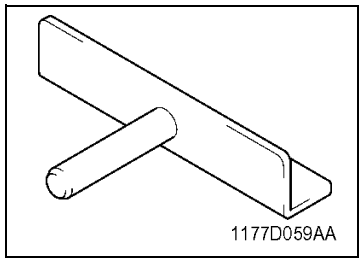
3 ADJUSTMENT

3-1. JIGS AND TOOLS USED

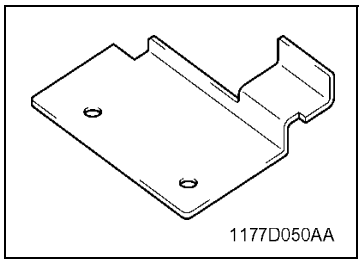
1. Front Door Interlock Switch Actuating Jig



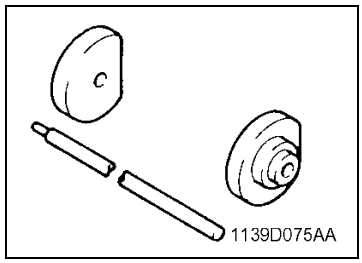
2. Scanner Positioning Jig



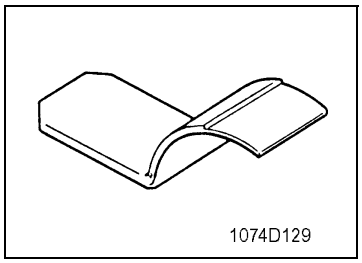
3. Scanner/Mirrors Carriage Positioning Jig



4. Sleeve/Magnet Roller Position Jig



5. D.B. Adjusting Jigs

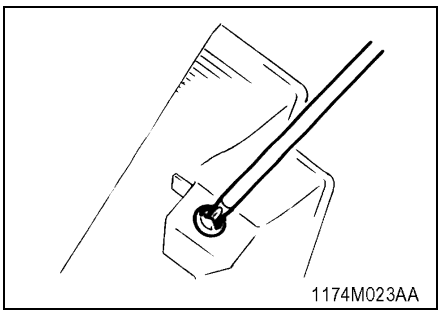


3-2. ADJUSTMENT REQUIREMENTS LIST

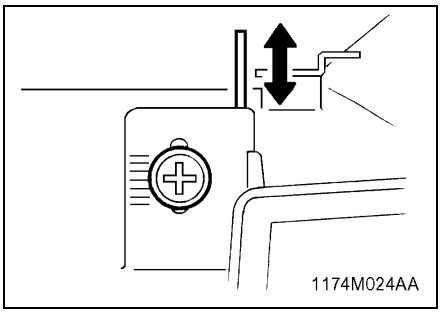
Adjustment Item	Requirements	Adjusting Point	Ref. Page.
Shading Position		Control Panel	D-43
Print / Regist (FD)	3.5 ± 0.2mm	Control Panel	D-36
IR / Regist (CD)	—	Control Panel	D-39
IR / Regist (FD)	—	Control Panel	D-40
IR / Zoom (CD)	∝ 2.00 : 200 ± 2mm ∝ 1.00 : 200 ± 2mm ∝ 0.50 : 100 ± 1mm	Control Panel	D-41
IR / Zoom (FD)	∝ 2.00 : 200 ± 2mm ∝ 1.00 : 300 ± 3mm ∝ 0.50 : 150 ± 1.5mm	Control Panel	D-42
Manual Bypass Table Reference Position	10.8 ± 0.5mm	Manual Bypass Table	D-37
1st and 2nd Drawer Reference Position	10.8 ± 0.5mm	Drawer Cover	D-38
Adjustment of the Paper Lifting Plate Position	—	Spring Position	D-45
Adjustment of the Scanner/Mirrors Carriage Position	—	Scanner/Mirrors Carriage Position	D-46
Adjustment of the Doctor Blade	$0.35\ ^{+0.07}_{-0}$ mm	Doctor Blade	D-47
Adjustment of the Original Size Detecting Board	—	Control Panel	D-48

3-3. ADJUSTMENT OF SWITCHES

(1) Adjustment of Front Door Interlock Switch S2



1. Loosen screws that secure the Front Door Interlock Switch Actuating Plate to the Front Door.



2. Move the Switch Actuating Plate back and forth to meet the requirements below.

Requirements

- When the Front Door is closed, the Magnetic Catches on both sides are in secure contact.
- When the Front Door is closed, the Interlock Switch indicator on the Control Panel goes out.

3-4. ELECTRICAL/IMAGE ADJUSTMENT

Method of inputting mode

- Tech. Rep. Mode
  Meter Count key ↓!Stop key ↓!0 ↓!0 ↓!Stop key ↓!0 ↓!1
- Adjust Mode
  Tech. Rep. Mode ↓!Stop key ↓!Start key ↓!Keypad ↓!Start key
  (E.g.: A4 mode if "4" of Keypad is entered)
- Function Mode
  Tech. Rep. Mode ↓!1 ↓!Start key ↓!Keypad ↓!Start key
  (E.g.: F8 mode if "8" of Keypad is entered)

(1) Adjustment of the ATDC Sensor

Adjustment Procedure

1. Call F8 of the function mode (ATDC level adjustment) to the screen.

F8 ATDC SENSOR XXX

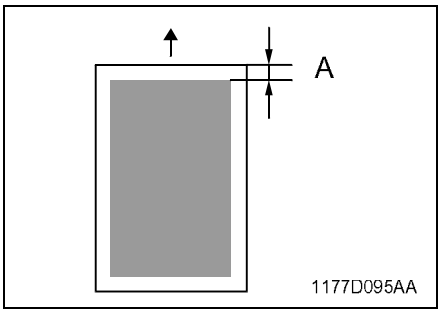
2. Press the Start key to let the copier make the ATDC Sensor adjustment automatically. (It takes about 4 to 5 min. for the copier to complete the adjustment procedure.) Enter the adjustment value on the label "I/U Assy".
3. After the adjustment has been made, press the Panel Reset key twice (or turn OFF the Power Switch) to return the copier back to the normal mode.

NOTE

Make the ATDC Sensor adjustment whenever fresh starter has been loaded.
If data has been cleared by Memory Clear, use Adjust Mode A8 [ATDC Sensor (Manual)] to re-input the data.

(2) Registration FD

Adjustment Procedure



- Setting value range: 74 to 126
- Movement equivalent to 1 step of setting value: 0.23 mm

1. Produce a test pattern by running the F12-0 operation.
2. Check that width A on the test pattern falls within the specified range.
3. If it falls outside the range, use Adjust Mode A1 [Registration (FD)] and change the adjustment value so that width A falls within the specified range.

REGISTRATION(FD) 10 KEY INPUT :

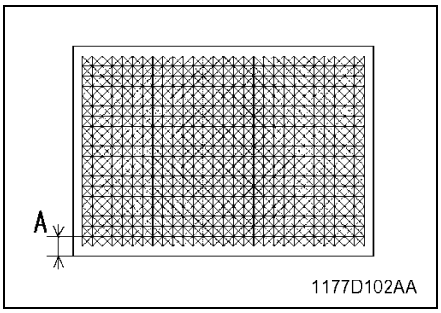
Enter the adjustment value from the Key-pad and press the Start key to validate the value entered. (If a wrong value is entered, press the Clear key to clear it.)

If width A is longer than the specifications, decrease the adjustment value.

If width A is shorter than the specifications, increase the adjustment value.

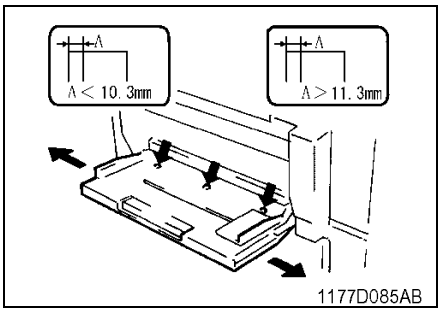
(3) Adjustment of the Manual Bypass Table Reference Position

Adjustment Procedure



÷ Dimension A on the copy should measure 10.8 ± 0.5 mm.

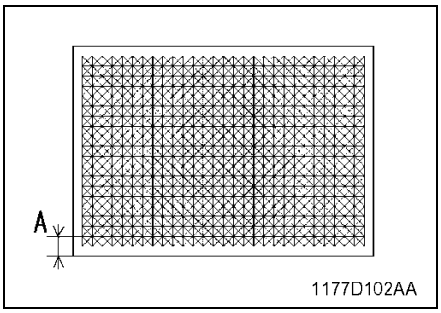
1. Produce a test pattern by running the F12-1 operation.
2. Check that width A on the test pattern falls within the specified range.
   Width A : Gap between the edge of the paper and the first thick line from the edge.
3. If the line does not meet the requirement, loosen the screws that secure the Manual Bypass Table and move the Table as necessary in the direction of the arrows.



NOTE
If dimension A on the copy is smaller than 10.3 mm, move the Table to the front. If it is more than 11.3 mm, move the Table to the rear.

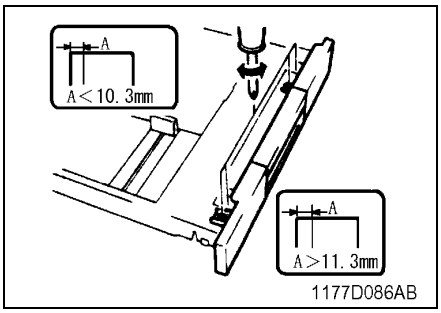
(4) Adjustment of the 1st/2nd Drawer Reference Position

Adjustment Procedure



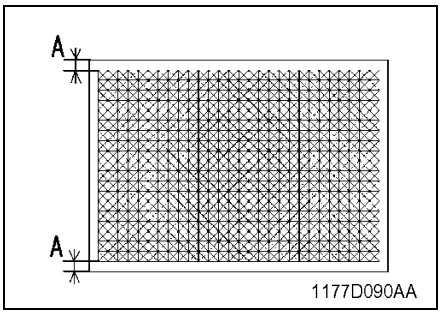
÷ Dimension A on the copy should measure 10.8 ± 0.5 mm.

1. Produce a test pattern by running the F12-1 operation.
2. Check that width A on the test pattern falls within the specified range.
   Width A : Gap between the edge of the paper and the first thick line from the edge.
3. If the line does not meet the requirement, slide out the 1st Drawer, loosen the adjusting screws, and move the Paper Tray as necessary to the front or rear.
   Using the same steps (1 through 4), adjust the reference position of the 2nd Drawer.



NOTE
If dimension A on the copy is smaller than 10.3 mm, move the Paper Tray to the rear. If it is more than 11.3 mm, move the Paper Tray to the front.

(5) IR/Registration CD



÷ Produce a test pattern by running the F12-1 operation.

÷ Setting value range: 36 to 164
÷ Movement equivalent to 1 step of setting value: 0.0846 mm

Adjustment Procedure

1. Place the test pattern produced on the Original Glass and make a copy in the full size mode.
2. Align the copy with the original and check for any deviation in dimension A.
3. If it falls outside the range, use Adjust Mode A2 [IR/Registration (CD)] and change the adjustment value so that the deviation falls within the specified range.

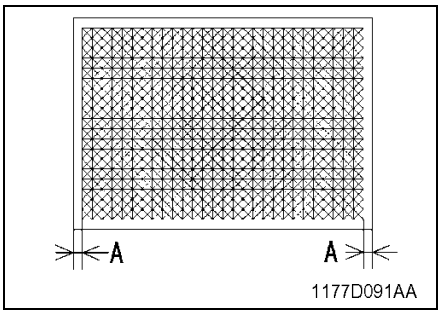
IR/REGISTRATION(CD) 10 KEY INPUT :

Enter the adjustment value from the Keypad and press the Start key to validate the value entered. (If a wrong value is entered, press the Clear key to clear it.)

If the dimension A on the copy is on the right side of that on the original, decrease the adjustment value.

If the dimension A on the copy is on the left side of that on the original, increase the adjustment value.

(6) IR/Registration FD



÷ Produce a test pattern by running the F12-1 operation.

÷ Setting value range: 84 to 116
÷ Movement equivalent to 1 step of setting value: 0.1227mm

Adjustment Procedure

1. Place the test pattern produced on the Original Glass and make a copy in the full size mode.
2. Align the copy with the original and check for any deviation in dimension A.
3. If it falls outside the range, use Adjust Mode A3 [IR/Registration (FD)] and change the adjustment value so that the deviation falls within the specified range.

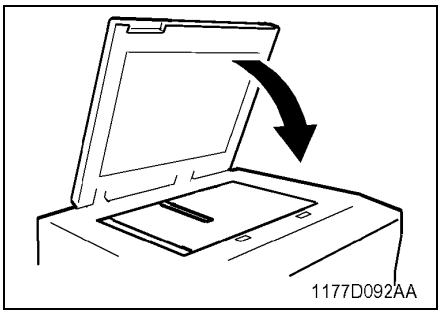
IR/REGISTRATION(FD) 10 KEY INPUT :

Enter the adjustment value from the Keypad and press the Start key to validate the value entered. (If a wrong value is entered, press the Clear key to clear it.)

If the dimension A on the copy is on the upper side of that on the original, decrease the adjustment value.

If the dimension A on the copy is on the lower side of that on the original, increase the adjustment value.

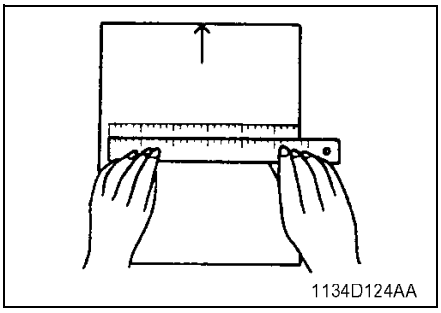
(7) IR / Zoom CD



- Setting value range: 90 to 110
- Movement equivalent to 1 step of setting value: ×0.001mm

Adjustment Procedure

1. Place a scale on the Original Glass and make a copy at each of the following zoom ratios ×2.00, ×1.00, and ×0.50.
2. Check that the copy meets the specifications.

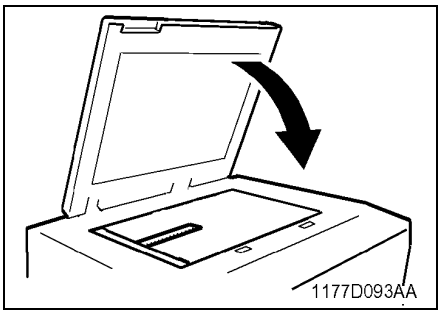


3. If it does not, use Adjust Mode A4 [IR/Zoom (CD) Copy] and change the adjustment value so that the copy meets the specifications.

IR/ZOOM (CD)<COPY>
10 KEY INPUT :

Enter the adjustment value from the Key-pad and press the Start key to validate the value entered. (If a wrong value is entered, press the Clear key to clear it.)
If the image on the copy is longer than the specifications, decrease the adjustment value.
If the image on the copy is shorter than the specifications, increase the adjust-ment value.

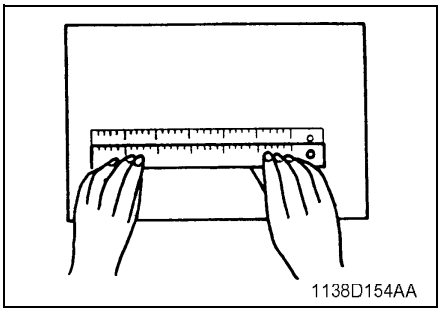
(8) IR / Zoom FD



- Setting value range: 90 to 110
- Movement equivalent to 1 step of setting value: ×0.001mm

Adjustment Procedure

1. Place a scale on the Original Glass and make a copy each at each of the following zoom ratios X2.00, X1.00, and X0.50.
2. Check that the copy meets the specifications.



3. If it does not, use Adjust Mode A6 [IR/Zoom (FD) Copy] and change the adjustment value so that the copy meets the specifications.

IR/ZOOM (FD)<COPY> 10 KEY INPUT :

Enter the adjustment value from the Key-pad and press the Start key to validate the value entered. (If a wrong value is entered, press the Clear key to clear it.)

If the image on the copy is longer than the specifications, decrease the adjustment value.

If the image on the copy is shorter than the specifications, increase the adjust-ment value.

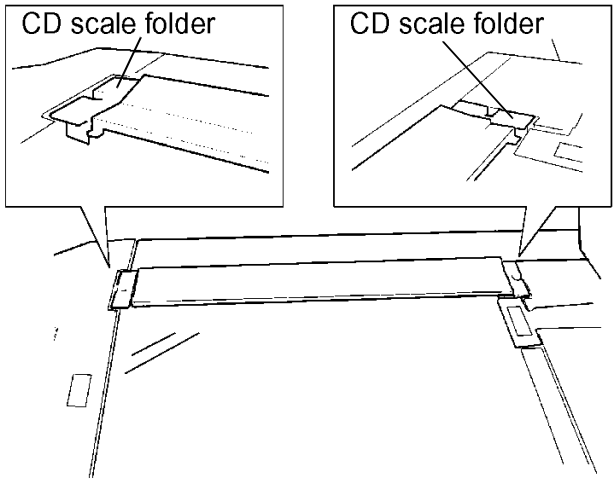
NOTE

If the adjustment value is changed in "IR/Zoom (FD) Copy," be sure to perform "IR/Shading Position."

(9) IR/Shading Position

- Setting value range: 60 to 140
- Movement equivalent to 10 steps of setting value: 1.227mm
- Increase the setting value to move to the right (scanning position).
- Decrease the setting value to move to the left (scanning position).

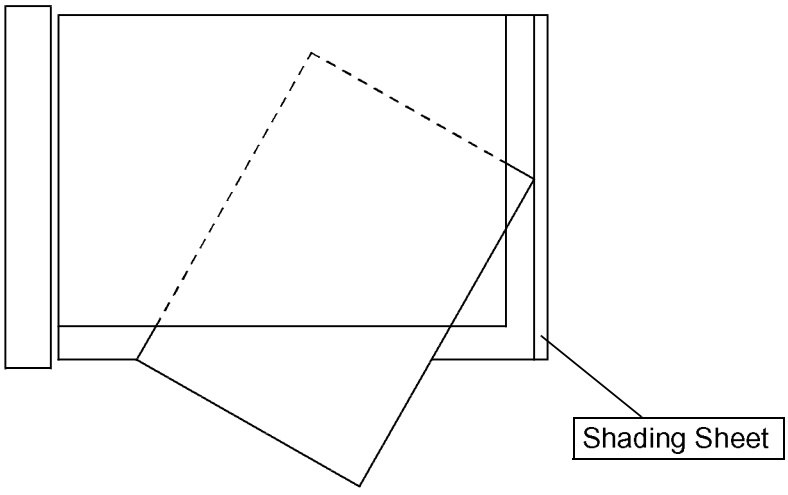
Confirmation matter before adjusts
- The original glass must contact the CD scale folder side.



1177D098AA

Adjustment method

1. Position an original (solid black, colored paper) as shown below and, with a sheet of A3 paper placed on top of it, make a copy. Then, check the image of the copy.



1177D080AB

NOTE
When positioning the paper, make sure that the corner of the paper is in contact with the Shading Sheet.

2. Change (increase) the adjustment value in Adjust Mode A9 (IR/Shading Position) to move the shading position until the void on the copy image disappears.

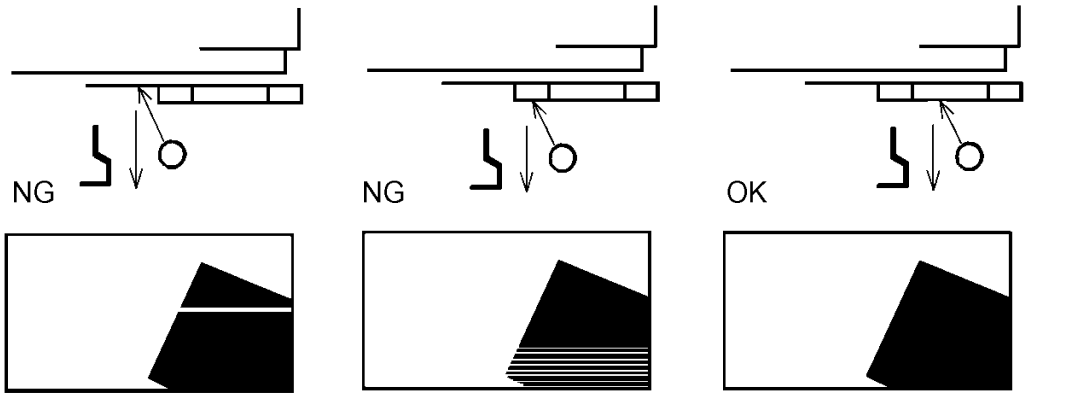


Fig. 1 Fig. 2 1177D076AA

Step 1. Decrease the adjustment value in Adjust Mode A9 until void occurs on the copy image. (Fig. 1)

°

Step 2. Increase the adjustment value in Adjust Mode A9 until the void on the copy image disappears (the edge of the Shading Sheet) to find the exact value at which the void disappears.

NOTE

Increase the A9 adjustment value only gradually.

°

Step 3. Input a value that is the value found in step 2 plus 25 (which is equivalent to about 3 mm). (Fig. 2)

°

Example: If the void disappears at 85 (adjustment value)
85 + 25 = 110 (Input 110 as the adjustment value.)

°

Step 4. Make a copy and check that the Scanner does not hit against the right side bracket.

°

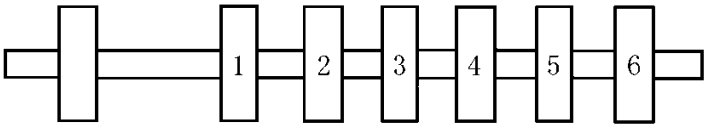
Step 5. This completes the shading position correction procedure.

(10) Adjustment of the Paper Lifting Plate Springs (2nd Drawer)

NOTE

- *When the paper size loaded in the 2nd Drawer has been changed, be sure to replace the Springs by referring to the Table given below.*
- *When the Springs have been replaced, change the position of the 2nd Drawer Paper Take-Up Roll by referring to the Table given below.*

Roll Position



1139U038AA

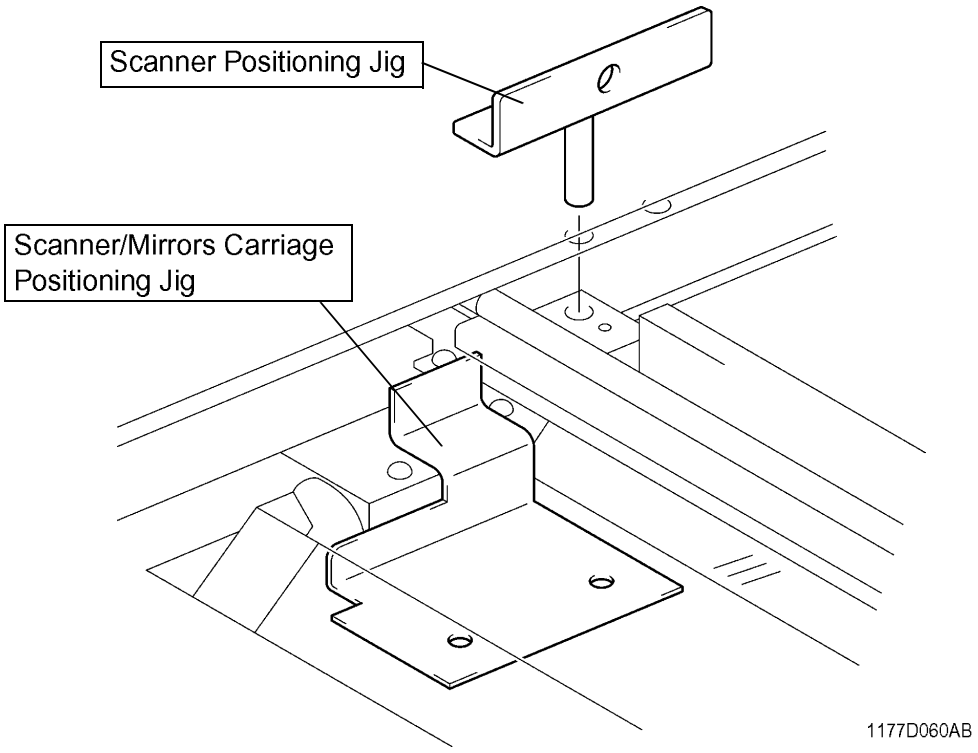
Paper Size		Setting Position/Type of Spring					Roll Position
		SP1, 1~9 SP2, 10~14	SP2 12~14	SP1, 6~9 SP2, 10~11	SP1 2~5	SP1, 1	
A3 (L)		Silver				Silver	6
B4 (L)					Silver		4
A4 (L)				Silver			3
A4 (C)						Silver	4
B5 (L)		Gold		Gold			2
B5 (C)		Silver			Silver		4
A5 (L)		Gold	Gold				1
11" ∝ 17"		Silver			Silver		5
11" ∝ 14"							5
10" ∝ 14"		Silver			Silver		4
9-1/4" ∝ 14"				Silver			3
8-1/2" ∝ 14"							
F.L.S	8-2/3" ∝ 13"						
	8-1/2" ∝ 13"						
	8-1/4" ∝ 13"						
8" ∝ 13"		Gold		Gold			2
8-1/4" ∝ 11-3/4"		Silver		Silver			3
LETTER (L)							
GOVERNENT LETTER (L)		Gold		Gold			2
LETTER (C)		Silver			Silver		5
GOVERNENT LETTER (C)							
10" ∝ 8"							4
5-1/2" ∝ 8-1/2"		Gold	Gold				1

3-5. OTHER ADJUSTMENTS

(1) Adjustment of the Scanner/Mirrors Carriage Position

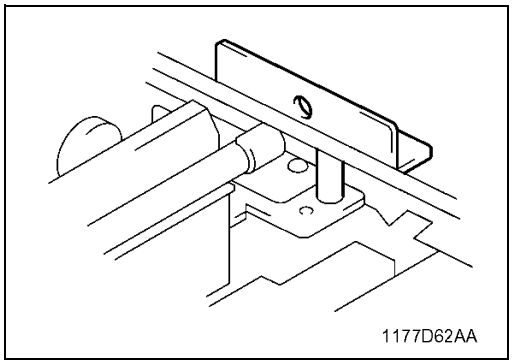
Adjustment Procedure

- With the Scanner correctly positioned, there should be no clearance between the Scanner/Mirrors Carriage and the Positioning Jig.
- Before installing the jigs, temporarily secure the set screws of the cable holding plate of the Scanner. (The cable holding plate should be installed so that its marked side faces up.)

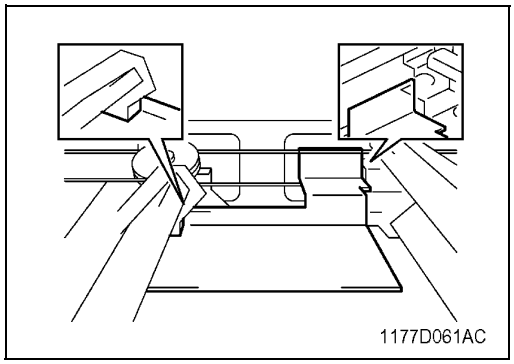


Jig Installation Positions

Scanner Positioning Jig installed in the Scanner



Mirrors Carriage Positioning Jig installed in the 2nd/3rd Mirrors Carriage



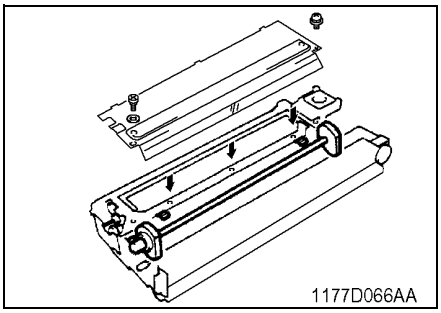
NOTE
Fit the Scanner Positioning Jig in the hole on the paper exit end.

(2) Adjustment of the Gap Between the Doctor Blade and Sleeve Roller

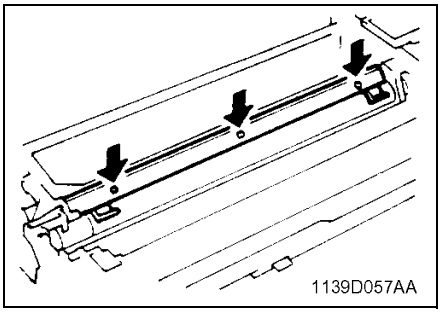
Adjustment Procedure

÷ The gap between the Doctor Blade and the Sleeve Roller should be 0.35 mm $^{+0.07}_{0}$ mm.

NOTE
Cover the PC Drum with the Drum Cloth to prevent it from being scratched.



1. Remove the Developer Scattering Prevention Plate.
2. Wipe the developer off the surface of the Sleeve Roller.
3. Install the Sleeve/Magnet Roller Positioning Jig onto the Imaging Unit.



4. Loosen the three screws securing the Doctor Blade in position. Insert the D.B. Adjusting Jigs into the space between the Doctor Blade and Sleeve Roller.
5. Press down the Doctor Blade until it positively contacts the D.B. Adjusting Jigs, then tighten the three screws to secure it in position.

(3) Adjustment of the Original Size Detecting Board

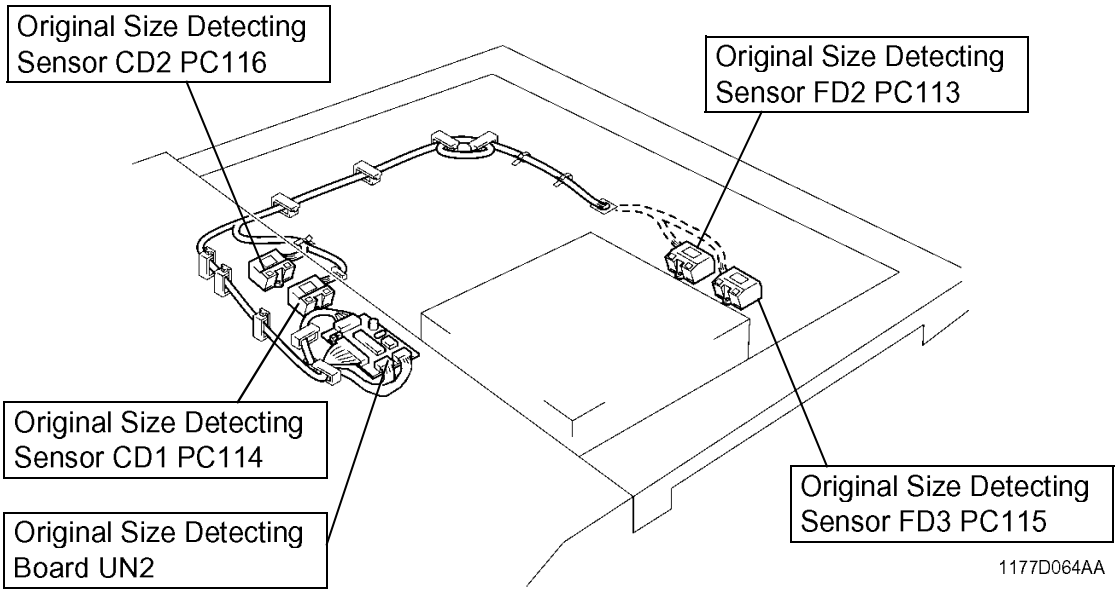
Adjustment Procedure

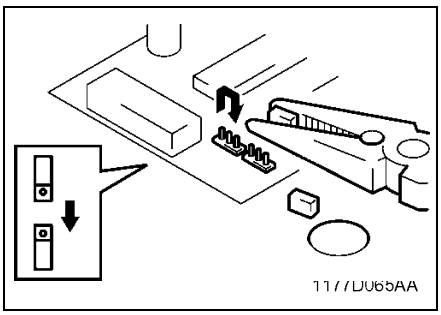
1. Call “F7 (Original Sensor)” of the Function Mode to the screen.
2. Press the Start key to make the adjustment automatically.
3. When the adjustment sequence is completed, press the Panel Reset key twice to return the copier back to the normal mode.

NOTE
Make this adjustment when Memory Clear has been performed, and when the RAM Board, Original Size Detecting Board, or Original Size Detecting Sensor has been replaced. During the adjustment sequence, the Start key is lit up orange. As soon as the sequence is completed, it turns to green.

4 MISCELLANEOUS

4-1. INSTALLATION OF ORIGINAL SIZE DETECTING SENSORS CD2/FD3


Original Size Detecting Sensor CD2 PC116
Original Size Detecting Sensor FD2 PC113
Original Size Detecting Sensor CD1 PC114
Original Size Detecting Board UN2
Original Size Detecting Sensor FD3 PC115
1177D064AA



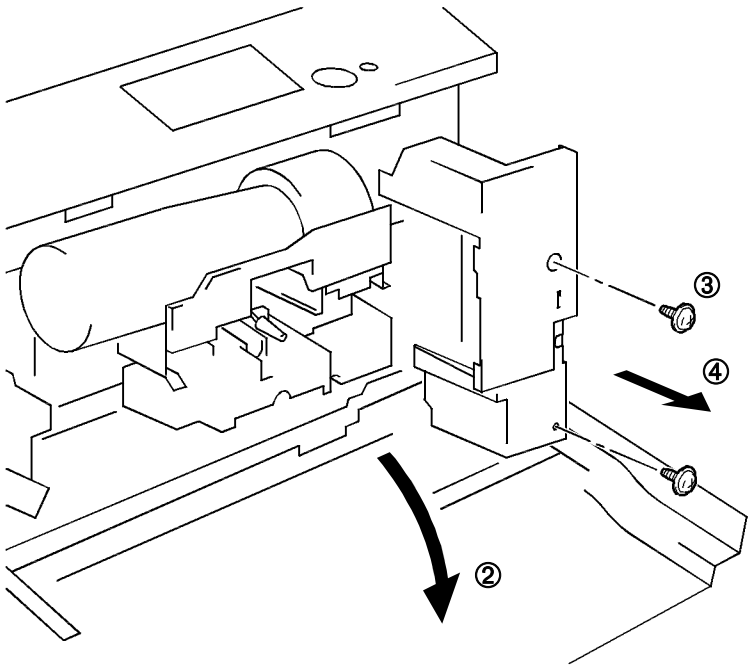
If Original Size Detecting Sensors CD2 and FD3 are mounted, change the jumper connection of J1 and J2, respectively.

NOTE

- *Connect Original Size Detecting Sensor CD2 to blue CN4UN2 and Original Size Detecting Sensor FD3 to white CN3UN2.*
- *Be sure to run the F7 operation after FD3 and CD2 have been installed or the copier is unable to detect the paper size.*

4-2. INSTALLATION OF THE PLUG-IN COUNTER MOUNTING BRACKET (OPTION)

Before starting the procedure, remove the Upper Right Cover and Right Cover.



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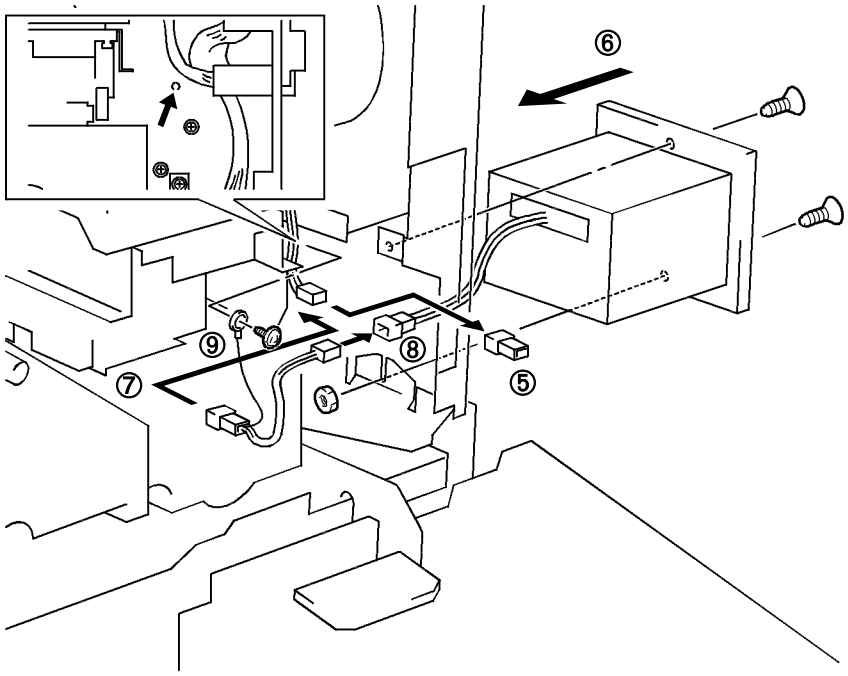

1177D100AA

SWITCHES ON PWBs, TECH. REP. SETTINGS

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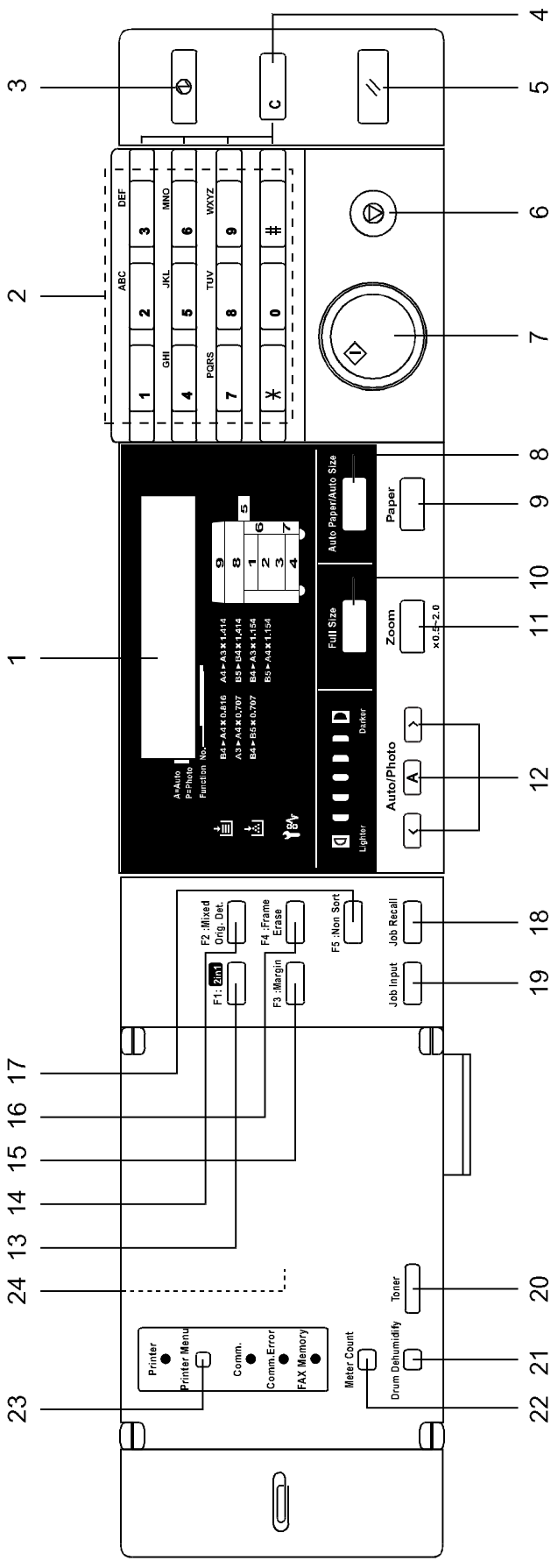
5 CONTROL PANEL KEYS AND INDICATORS

+ Control Panel Keys

1. **Message Display**
   Serves as the basic source of information showing such information as warning messages and the current copy mode.
2. **Keypad**
   Use to enter the number of copies to be made and other numeric data.
3. **Energy Saver Key**
   Press to set the machine into the Energy Saver Mode.
4. **Clear Key**
   Press to reset the multi-copy entry to 1 and reset values that have been entered through the Keypad to their original settings.
5. **Panel Reset Key**
   Press to set the machine into the initial mode, clearing all settings made previously on the Control Panel. Pressing this key will also clear any scanned image data.
   ✽ It does not, however, clear the contents of the copying job program memory.
6. **Stop Key**
   Press to stop a multi-copy cycle.
7. **Start Key**
   Press to start a copy cycle.
8. **Auto Paper/Auto Size Key**
   Press this key to select the Auto Paper, Auto Zoom and Manual Selection Modes.
9. **Paper Select Key**
   Press to select the drawer that contains the desired paper size.
10. **Full Size Key**
    Press to select full size (100%).
11. **Zoom Key**
    Press this key to select various modes for determining the zoom ratio of the machine.
12. **Exposure Control Keys**
    (<) (>): Press as necessary to vary the exposure level in the Manual Exposure Mode.
    (A): Press to select either the Auto Exposure Mode, Manual Exposure Mode, or Photo Mode.
13. **F1: 2in1 Key**
    Press this key to generate a one-sided copy of two documents reduced to fit onto one sheet of paper.
    ✽ This feature is only supported when the Automatic Document Feeder is attached.
14. **F2: Mixed Original Detection Key**
    Press when making copies using the Automatic Document Feeder in which originals of assorted sizes are loaded together.
15. **F3: Margin Key**
    Press this key to create copies of documents with an added 5 mm - 20 mm margin for easy filing.
16. **F4: Frame Erase Key**
    Press this key to erase anything that might appear around the margins of a document.
17. **F5: Nonsort Key**
    Press this key to select the Sort and Nonsort Modes.
18. **Job Recall Key**
    Press to call up a copy job program previously stored in the program memory.
19. **Job Input Key**
    Press to store a copy job program in the program memory.
20. **Toner key**
    Press when the image on the copy becomes too light.
21. **Drum Dehumidify Key**
    Press to remove condensation formed on the surface of the PC Drum.
22. **Meter Count Key**
    Press this key to display the current Total Count and Size Count values of the machine.
23. **Printer Menu Key**
    Press this key to enter the Printer mode.
    ✽ This feature is only supported when the Controller Unit is attached.
24. **Fax Function Keys**
    Press these keys to enter Fax settings.
    ✽ This feature is only supported when the Fax Unit is attached.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24
C
ABC
DEF
GHI
JKL
MNO
PQRS
TUV
WXYZ
Auto Paper/Auto Size
Paper
Full Size
Zoom
×0.5–2.0
Auto/Photo
Lighter
Darker
F1: 2in1
F2 :Mixed Orig. Det.
F3 :Margin
F4 :Frame Erase
F5 :Non Sort
Job Reall
Job Input
Toner
Drum Dehumidify
Meter Count
Printer
Printer Menu
Comm.
Comm.Error
FAX Memory

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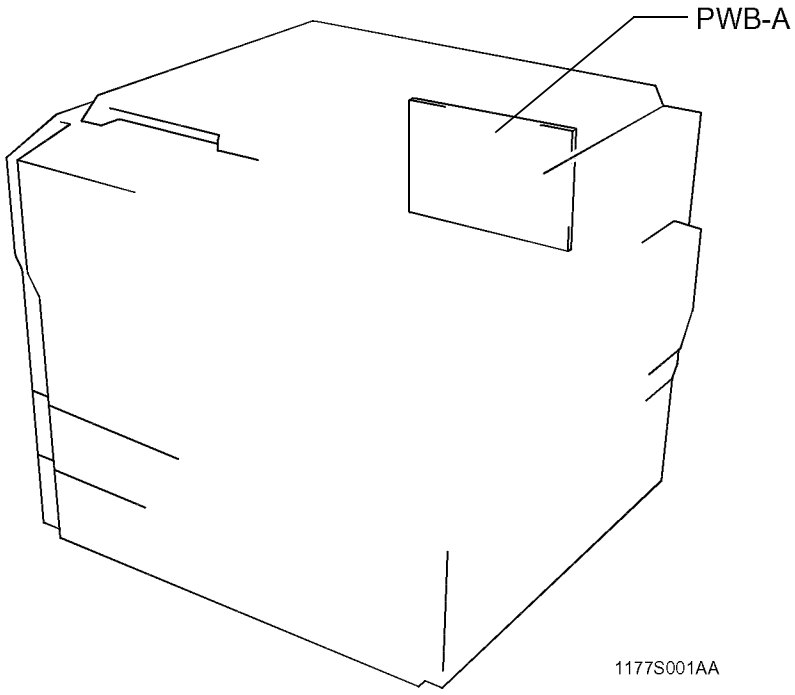
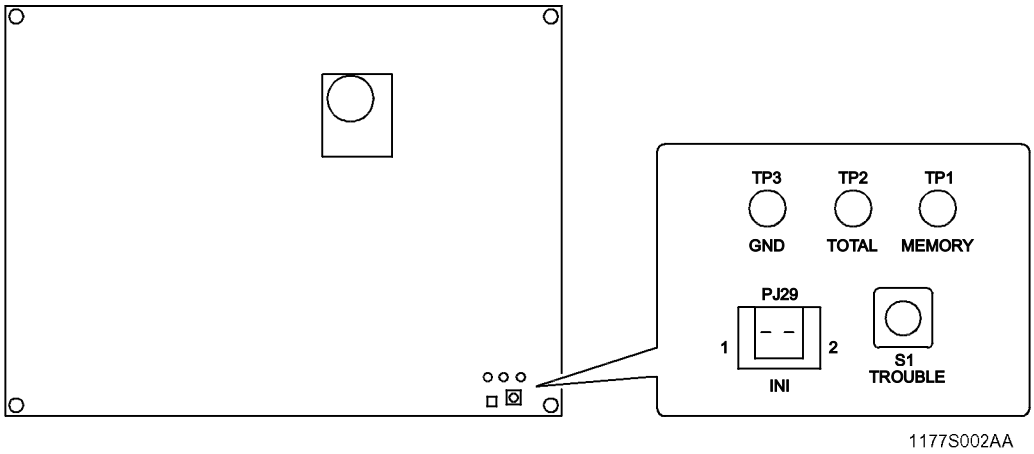
6 FUNCTIONS OF SWITCHES AND OTHER PARTS ON PWBs

6-1. PWB Location



6-2. Master Board PWB-A



Symbol	Name	Description
S1	Trouble Reset Switch	Resets a malfunction.
PJ29	Initialize Points	Reset a misfeed, malfunction, or erratic display.
TP1	Memory Clear Test Point	Initializes all data except those counted by the electronic counters.
TP3	GND Test Point	Ground terminal used for memory clear.

<Clearing Procedures>

÷ Initialize Points PJ29

1. Turn OFF the Power Switch.
2. With PJ29 closed, turn ON the Power Switch.
3. In approx. 5 sec., open PJ29.
4. Check that the message “completed Push #key.” is displayed on the Message Display and then press the # key.

÷ Memory Clear Test Point TP1

1. Turn OFF the Power Switch.
2. With the circuit across TP1 and TP3 closed, turn ON the Power Switch.
3. In approx. 5 sec., open the circuit across TP1 and 3.
4. Check that the message “completed Push #key.” is displayed on the Message Display and then press the # key.

NOTES

÷ *If an erratic operation or display occurs, perform the clearing procedures in the order of PJ29 and TP1.*

÷ *When memory clear has been performed, make the necessary settings again.*

<List of Data Cleared by Switches and Points>

Clearing Means / Data Cleared	Front Door Open/Close	Trouble Reset Switch S1	Initialize Points PJ29	Memory Clear Test Point TP1
Misfeed display	■	■	■	■
Malfunction display (excluding Exposure Lamp and fusing malfunctions)	■	■	■	■
Malfunction display (all including Exposure Lamp and fusing malfunctions)	—	■	■	■
Erratic operation/display	—	—	■	■
User mode	—	—	—	■
Service mode	—	—	—	■
F8 adjustment value	—	—	—	■
Adjust mode	—	—	—	■
Security mode	—	—	—	■

■: Cleared —: Not cleared

7 USER'S CHOICE MODE

+ This mode is used to make various settings according to the user's needs.

7-1. Functions Available from the User's Choice Mode

No.	Function
0	MIXED ORIG. SIZE
4	ORIGINAL THICKNESS
7	DISABLE SLEEP MODE
10	PAPER PRIORITY
12	COPY MODE PRIORITY
14	EXPO. MODE PRIORITY
16	EXPO. LEVEL (AUTO)

No.	Function
17	EXPO. LEVEL (MANUAL)
20	AUTO PANEL RESET
21	ENERGY SAVER MODE
23	REMOVE KEY COUNTER
28	SLEEP MODE
30	SELECT LANGUAGE
40	ZOOM MEMORY

7-2. User's Choice Mode Setting Procedure

<Setting Procedure>

1. With the Message Display indicating that a copy cycle can be initiated, hold down the Panel Reset key for about 5 seconds or more. Then, the following message appears on the display:

   USER'S CHOICE SELECT
   10 KEY INPUT:

2. From the Keypad, enter the number assigned to the desired function to be set.
3. Press the Start key. Then, the current setting for that particular function appears.
4. Enter the new setting from the Keypad.
5. Press the Start key to validate the entry of the new setting.

NOTE

If an illegal value is entered, the copier rejects it similarly to when the Clear key is pressed.

<Leaving the User's Choice Mode>

+ Press the Panel Reset key.

7-3. User Mode Setting Details

User Mode

<table>
<tr><th>Function No.</th><th>Setting (The default is Highlighted).</th></tr>
<tr><td>0</td><td>
<MIXED ORIG. SIZE>
Select whether to enable the Mixed Original Detection function or not in the initial mode.
<table>
<tr><td>Data</td><td>0</td><td>1</td></tr>
<tr><td>Description</td><td>Mixed Original Detection function ON</td><td>Mixed Original Detection function OFF</td></tr>
</table>
</td></tr>
<tr><td>4</td><td>
<ORIGINAL THICKNESS>
Select whether to turn ON the Lightweight Original function or not when the ADF is used.
<table>
<tr><td>Data</td><td>0</td><td>1</td></tr>
<tr><td>Description</td><td>Normal</td><td>Lightweight Original</td></tr>
</table>
</td></tr>
<tr><td>7</td><td>
<DISABLE SLEEP MODE>
Select whether to allow the option of “0” to be selected in User’s Choice function no. 28.
<table>
<tr><td>Data</td><td>0</td><td>1</td></tr>
<tr><td>Description</td><td>Not selectable</td><td>Selectable</td></tr>
</table>
</td></tr>
<tr><td>10</td><td>
<PAPER PRIORITY>
Select the priority paper size or paper source selected when the copier is set into the AMS or Manual mode.
<table>
<tr><th>Data</th><th>Description</th><th>Data</th><th>Description</th></tr>
<tr><td>0</td><td>A3(L)</td><td>10</td><td>11”∝17”(L)</td></tr>
<tr><td>1</td><td>B4(L)</td><td>11</td><td>11”∝14”(L)</td></tr>
<tr><td>2</td><td>A4(L)</td><td>12</td><td>Legal (L)</td></tr>
<tr><td>3</td><td>B5(L)</td><td>13</td><td>Letter (L)</td></tr>
<tr><td>4</td><td>A5(L)</td><td>14</td><td>5-1/2” × 8-1/2” (L)</td></tr>
<tr><td>5</td><td>FLS(L)</td><td>15</td><td>Letter (C)</td></tr>
<tr><td>6</td><td>A4(C)</td><td>20</td><td>1st Drawer</td></tr>
<tr><td>7</td><td>B5(C)</td><td>21</td><td>2nd Drawer</td></tr>
<tr><td></td><td></td><td>22</td><td>3rd Drawer</td></tr>
<tr><td></td><td></td><td>23</td><td>4th Drawer</td></tr>
</table>
Initial setting: U.S.A. areas “15”; Europe “6”
</td></tr>
<tr><td>12</td><td>
<COPY MODE PRIORITY>
Select the priority copying mode that is automatically selected in the initial mode.
<table>
<tr><td>Data</td><td>0</td><td>1</td><td>2</td></tr>
<tr><td>Description</td><td>APS</td><td>AMS</td><td>Manual</td></tr>
</table>
</td></tr>
</table>

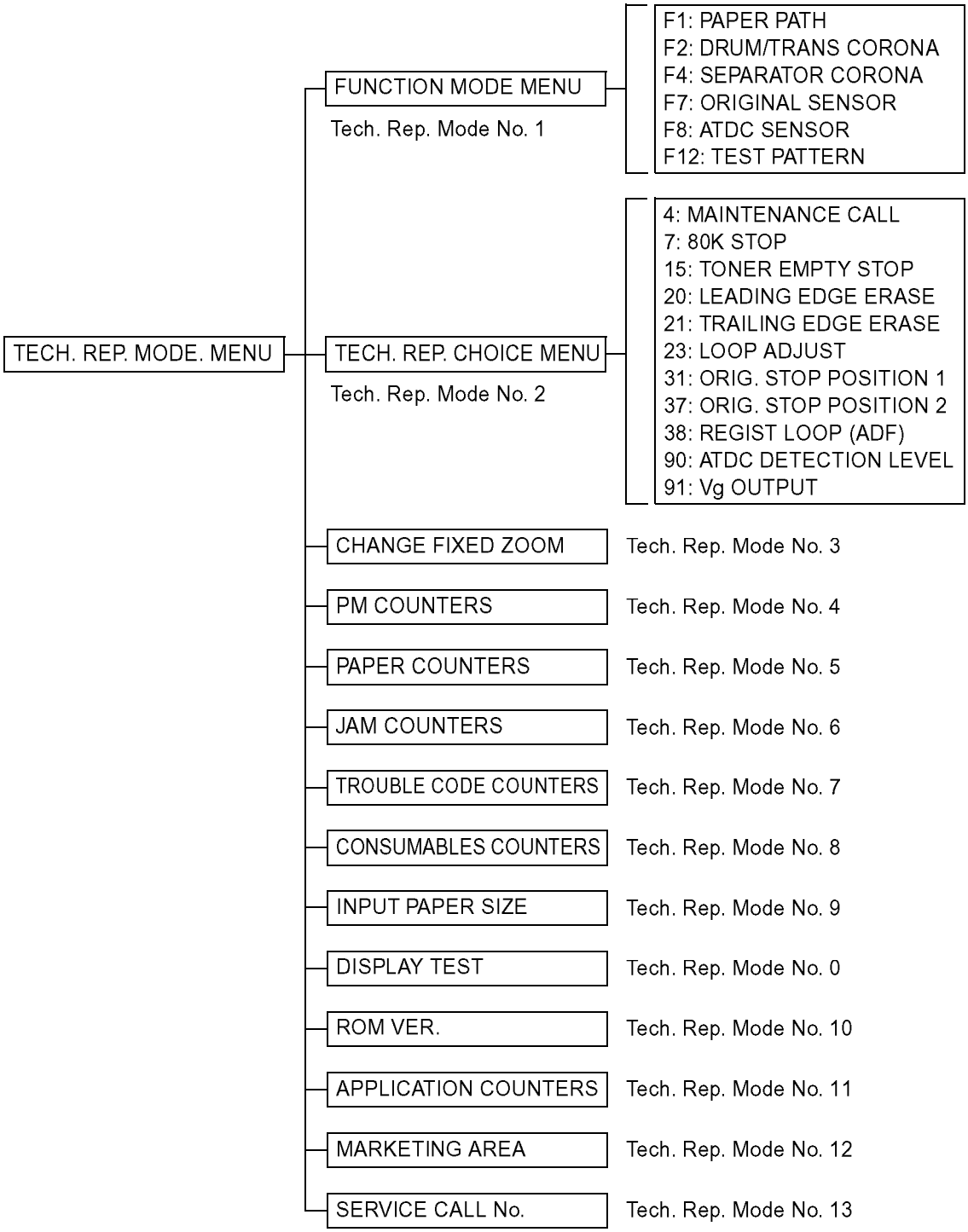
<table>
<tr><th>Function No.</th><th>Setting (The default is Highlighted).</th></tr>
<tr><td>14</td><td><EXPO. MODE PRIORITY>
Select the priority exposure mode that is automatically selected in the initial mode.
<table><tr><td>Data</td><td>0</td><td>1</td></tr><tr><td>Description</td><td>Auto Exposure</td><td>Manual Exposure</td></tr></table></td></tr>
<tr><td>16</td><td><EXPO. LEVEL (AUTO)>
Select the priority exposure level that is automatically selected in the Auto Exposure mode.
<table><tr><td>Data</td><td>0</td><td>1</td><td>2</td></tr><tr><td>Description</td><td>Lighter</td><td>Normal</td><td>Darker</td></tr></table></td></tr>
<tr><td>17</td><td><EXPO. LEVEL (MANUAL)>
Select the priority exposure level that is automatically selected in the Manual Exposure mode.
<table><tr><td>Data</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr><tr><td>Description</td><td>EXP. 1</td><td>EXP. 2</td><td>EXP. 3</td><td>EXP. 4</td><td>EXP. 5</td></tr></table></td></tr>
<tr><td>20</td><td><AUTO PANEL RESET>
Select the time to reset the control panel, or disable the panel reset function.
<table><tr><td>Data</td><td>0</td><td>1</td><td>2</td></tr><tr><td>Description</td><td>Disabled</td><td>30 sec.</td><td>1 min.</td></tr></table></td></tr>
<tr><td>21</td><td><ENERGY SAVER MODE>
Select the time to allow the copier to enter the Energy Saver mode.
<table><tr><td>Data</td><td>1 ..... 15 ..... 240</td></tr><tr><td>Description</td><td>The data value is the time in min.</td></tr></table></td></tr>
<tr><td>23</td><td><REMOVE KEY COUNTER>
Select whether to activate the panel reset function when the Plug-In Counter is pulled out.
<table><tr><td>Data</td><td>0</td><td>1</td></tr><tr><td>Description</td><td>Panel reset is not activated</td><td>Activated</td></tr></table></td></tr>
</table>

<table>
<tr><th>Function No.</th><th>Setting (The default is Highlighted).</th></tr>
<tr><td>28</td><td>
<SLEEP MODE>
Select the time to activate the auto power OFF function, or disable it.
<table>
<tr><td>Data</td><td>0</td><td>1 ..... 30 ..... 240</td></tr>
<tr><td>Description</td><td>Disabled</td><td>The data value is the time in min.</td></tr>
</table>
NOTE
The option “0” is selectable only if “1” is selected in User’s Choice function no. 7.
</td></tr>
<tr><td>30</td><td>
<SELECT LANGUAGE>
Select the language of the information given on the control panel.
<table>
<tr><th>Data</th><th>Description</th><th>Data</th><th>Description</th></tr>
<tr><td>0
1
2
3
4
5
6</td><td>English
French
Spanish
German
Italian
Danish
Dutch</td><td>7
8
9
10
11
12</td><td>Swedish
Finnish
Norwegian
Portuguese
Czech
Hungarian</td></tr>
</table>
</td></tr>
<tr><td>40</td><td>
<ZOOM MEMORY>
Store any desired zoom ratio in memory.
<Procedure>
1. Displays the currently stored zoom ratio (initial setting: ∝1.000).
2. Enter a ratio that should fall within the range of ∝0.500 to ∝2.000 from the Keypad.
3. Press the Start key to store the ratio in memory.
</td></tr>
</table>

8 TECH. REP. MODE

+ This mode allows the Tech. Rep. to set, adjust, and/or program various service functions.

8-1. Tech. Rep. Mode Function Tree



8-2. Tech. Rep. Mode Function Setting Procedure

<Procedure>

1. Press the Meter Counter key, then perform the following steps to enter the Tech. Rep. mode.

   Press the Stop key. ➢ Press “0.” ➢ Press “0.” ➢

   Press the Stop key. ➢ Press “0.” ➢ Press “1.”

2. From the Keypad, enter the number that corresponds to the service mode no. assigned and then press the Start key.
3. Perform the necessary steps for the function selected.

<Leaving the Tech. Rep. Mode>

÷ Press the Panel Reset key.

8-3. Settings in the Tech. Rep. Mode

(1) Function (test)

÷ This function allows the Tech. Rep. to perform various functional tests and adjustments.

<Setting Procedure>

1. Enter the number assigned to the desired test from the Keypad and press the Start key.
2. When the Start key is pressed, it starts the test.
3. Press the Stop key to stop the test.

<Leaving the Function>

÷ Press the Panel Reset key.

Tech. Rep. Mode ▶ Function

<table>
<tr><th>Function No.</th><th>Description</th></tr>
<tr><td>F1</td><td><PAPER PATH>
A paper passage test is carried out after the copier has complete warming up.
NOTE
The test is started with the paper source selected before F1 was invoked.</td></tr>
<tr><td>F2</td><td><DRUM/TRANS CORONA>
Do not use this test as it is only for factory adjustment.</td></tr>
<tr><td>F4</td><td><SEPARATOR CORONA>
Do not use this test as it is only for factory adjustment.</td></tr>
<tr><td>F7</td><td><ORIGINAL SENSOR>
This test automatically adjusts the Original Size Detecting Sensors.
NOTE
For details, see DIS/REASSEMBLY, ADJUSTMENT.</td></tr>
<tr><td>F8</td><td><ATDC SENSOR>
This test automatically adjusts the ATDC Sensor.
NOTE
For details, see DIS/REASSEMBLY, ADJUSTMENT.</td></tr>
<tr><td>F12</td><td><TEST PATTERN>
This test outputs a test pattern. (From the Keypad, enter the number that corresponds to the desired test pattern.)
<table>
<tr><th>Display</th><th>Type</th><th>Display</th><th>Type</th></tr>
<tr><td>0</td><td>Halftone</td><td>3</td><td>Solid Halftone</td></tr>
<tr><td>1</td><td>1 dot Black Line</td><td>4</td><td>Halftone Line</td></tr>
<tr><td>2</td><td>2 dot White Line</td><td>5</td><td>Solid Halftone Line</td></tr>
</table>
NOTE
Paper is fed for this test from the paper source selected before F12 was invoked.</td></tr>
</table>

(2) Tech. Rep. Choice

÷ This function allows the Tech. Rep. to make various settings and adjustments.

<Setting Procedure>

1. From the Keypad, enter the number assigned to the desired Tech. Rep. Choice function and press the Start key.
2. Enter the desired choice data from the Keypad.
3. Press the Start key to validate the choice data entered.

NOTE

If illegal choice data is entered, the copier rejects it similarly to when the Clear key is pressed.

<Leaving the Tech. Rep. Choice>

÷ Press the Panel Reset key.

Tech. Rep. Mode ▶ Tech. Rep. Choice

<table>
<tr><th>Choice No.</th><th>Setting (The default is Highlighted).</th></tr>
<tr><td>4</td><td><MAINTENANCE CALL>
Select whether to enable or disable the maintenance call reminder.
<table><tr><td>Data</td><td>0</td><td>1</td></tr><tr><td>Description</td><td>Disabled</td><td>Enabled</td></tr></table></td></tr>
<tr><td>7</td><td><80K STOP>
Select whether or not to inhibit copying when a copy job is interrupted after the count of Consumables Counter “DRUM” has reached 80K.
<table><tr><td>Data</td><td>0</td><td>1</td></tr><tr><td>Description</td><td>Permits copying</td><td>Inhibits copying</td></tr></table>Initial setting: U.S.A. areas “0”; Europe “1”</td></tr>
<tr><td>15</td><td><TONER EMPTY STOP>
Select whether or not to inhibit copying when T/C becomes 2.5% or less after a toner-empty condition has been detected.
<table><tr><td>Data</td><td>0</td><td>1</td></tr><tr><td>Description</td><td>Permits copying</td><td>Inhibits copying</td></tr></table></td></tr>
</table>

<table>
<tr><th>Choice No.</th><th>Setting (The default is Highlighted).</th></tr>
<tr><td>20</td><td>
<LEADING EDGE ERASE>
Adjust to vary the width of erase on the leading edge.
<table>
<tr><th>Data</th><th>Description</th><th>Data</th><th>Description</th></tr>
<tr><td>2
3</td><td>Erase width approx. 2 mm
Erase width approx. 3 mm</td><td>4
5</td><td>Erase width approx. 4 mm
Erase width approx. 5 mm</td></tr>
</table>
</td></tr>
<tr><td>21</td><td>
<TRAILING EDGE ERASE>
Adjust to vary the width of erase on the trailing edge.
<table>
<tr><th>Data</th><th>Description</th><th>Data</th><th>Description</th></tr>
<tr><td>2
3</td><td>Erase width approx. 2 mm
Erase width approx. 3 mm</td><td>4
5</td><td>Erase width approx. 4 mm
Erase width approx. 5 mm</td></tr>
</table>
</td></tr>
<tr><td>23</td><td>
<LOOP ADJUST>
Adjust to vary the length of the loop to be formed in paper before the Synchronizing Rollers.
<table>
<tr><td>Data</td><td>97</td><td>98.....100.....103</td><td>104</td></tr>
<tr><td>Description</td><td>4.9</td><td>5.5.....7.0 .....9.1</td><td>9.8</td></tr>
</table>
The length is variable in 0.1-mm increments.
</td></tr>
<tr><td>31/37/38</td><td>
<ORIGINAL STOP POSITION ADJUSTMENT>
Adjust the position at which to stop the original in each of the following ADF modes.
31: ORIG. STOP POSITION 1 (1-sided originals)
37: ORIG. STOP POSITION 2 (S-ADF mode)
38: REGIST LOOP (ADF)
<table>
<tr><td>Data</td><td>93</td><td>92.....100.....107</td><td>108</td></tr>
<tr><td>Description</td><td>-7</td><td>-6..... 0 .....+7</td><td>+8</td></tr>
</table>
The position is variable in 1-mm increments.
NOTE
The stop position is farther away from the Original Width Scale and the loop length of Regist. Loop (ADF) is greater in the + direction.
</td></tr>
</table>

<table>
<tr><th>Choice No.</th><th>Setting (The default is Highlighted).</th></tr>
<tr><td>90</td><td>
<ATDC DETECTION LEVEL>
Select the ATDC control level (T/C ratio).
<table>
<tr><th>Data</th><th>Description</th><th>Data</th><th>Description</th></tr>
<tr><td>98</td><td>T/C 4.0%</td><td>101</td><td>T/C 5.5%</td></tr>
<tr><td>99</td><td>T/C 4.5%</td><td>102</td><td>T/C 6.0%</td></tr>
<tr><td>100</td><td>T/C 5.0%</td><td>103</td><td>T/C 6.5%</td></tr>
</table>
</td></tr>
<tr><td>91</td><td>
<Vg OUTPUT>
Select the Vg output voltage.
When the image density becomes low due to a deteriorated PC Drum, select 1 (High), which makes the image density higher.
<table>
<tr><td>Data</td><td>0</td><td>1</td></tr>
<tr><td>Description</td><td>Low</td><td>High</td></tr>
</table>
</td></tr>
</table>

(3) Change Fixed Zoom

÷ This function allows the Tech. Rep. to change the fixed zoom ratios over the range between ∝0.500 and ∝2.000 according to the needs of the user.

<Setting Procedure>
1. Select the particular fixed zoom ratio to be changed.
2. Enter the desired zoom ratio from the Keypad.
3. Press the Start key to validate the new zoom ratio.

(4) PM Counters

÷ This function shows the counts of the PM Counter and Ports/Options Counter.
Counting system:
÷ PM Counter: Count-down type
÷ Ports/Options Counter: Count-up type

<Setting Procedure>
÷ Each press of the Paper Select key changes the contents of the display in the following order.

Order	Description	Order	Description
1	MAINTENANCE	5	3rd DRAWER
2	MANUAL FEED	6	4th DRAWER
3	1st DRAWER	7	ADF
4	2nd DRAWER		

<Setting a PM Counter Count>
1. Show the count of the PM Counter and press the Clear key to clear it.
2. Enter the desired count from the Keypad.
3. Press the Start key to validate the new count setting.

<Clearing a Count>
1. Show the count of the counter to be cleared.
2. Press the Clear key to clear the count. If a count is mistakenly cleared, press the Stop key to undo the clearing command.

NOTE
The copier gives the M1 display when the PM Counter reaches the setting count, if Maintenance Call is set to "1."

(5) Paper Counters

÷ This function shows the counts of different sizes of paper.

<Setting Procedure>

÷ Each press of the Paper Select key changes the contents of the display in the following order.

Order	Description	Order	Description
1	A3(L)	7	Letter
2	A4(L/C)	8	11"×17"
3	A5(L)	9	11"×14"
4	B4(L)	10	Invoice
5	B5(L/C)	11	FLS
6	Legal		

<Clearing a Count>

1. Show the count of the counter to be cleared.
2. Press the Clear key to clear the count. If a count is mistakenly cleared, press the Stop key to undo the clearing command.

(6) Jam Counters

÷ This function shows the number of misfeeds that have occurred at different locations in the copier.

<Setting Procedure>

÷ Each press of the Paper Select key changes the contents of the display in the following order.

Order	Description	Order	Description
1	MANUAL FEED	7	HORIZONTAL TRANS
2	1st DRAWER	8	EXIT
3	2nd DRAWER	9	ADF FEED
4	3rd DRAWER	10	ADF TRANSPORT
5	4th DRAWER	11	ADF EXIT
6	VERTICAL TRANS	12	SADF FEED

<Clearing a Count>

1. Show the count of the counter to be cleared.
2. Press the Clear key to clear the count. If a count is mistakenly cleared, press the Stop key to undo the clearing command.

(7) Trouble Code Counters

÷ This function shows the number of malfunctions that have occurred at different locations in the copier.

<Setting Procedure>

÷ Each press of the Paper Select key changes the contents of the display in the following order.

NOTE

The malfunction counters are displayed only when their counts are "1" or more. If the count of all counters is "0," then the message "All 0" appears.

Order	Malfunction Code	Description	Order	Malfunction Code	Description
1	C0000	An Upper Drive Motor malfunction	12	C0950	A 4th Drawer malfunction
2	C0010	A Lower Drive Motor malfunction	13	C0990	A Paper Feed Cabinet Main Tray malfunction
3	C004A	An Optical Section Cooling Fan Motor malfunction	14	C0998	A Paper Feed Cabinet Shift Tray malfunction
4	C004C	A Ventilation Fan Motor malfunction	15	C099E	A Shift Gate position error
5	C004E	A Power Supply Unit Cooling Fan Motor malfunction	16	C0F02	An Original Size Detecting Unit malfunction
6	C0070	A Toner Replenishing Motor malfunction	17	C0F30	An ATDC Sensor malfunction
7	C0500	Warming-up failure	18	C0F79	A Paper Empty Sensor malfunction
8	C0510	An abnormally low fusing temperature	19	C0FE1	An Original Size Detecting Sensor malfunction
9	C0520	An abnormally high fusing temperature	20	E2	An ATDC automatic adjustment failure
10	C0600	A Scanner Motor malfunction	21	Ar1	Copier watchdog
11	C0900	A 3rd Drawer malfunction	22	Ar2	ADF watchdog

<Clearing a Count>

1. Show the count of the counter to be cleared.
2. Press the Clear key to clear the count. If a count is mistakenly cleared, press the Stop key to undo the clearing command.

(8) Consumables Counters

÷ This function shows the number of copy processes to which different parts or supplies have been subjected.

<Setting Procedure>

÷ Each press of the Paper Select key changes the contents of the display in the following order.

Order	Description	Order	Description
1	IU	4	BLADE
2	DRAM	5	FUSING
3	DEVELOPER		

<Clearing a Count>

1. Show the count of the counter to be cleared.
2. Press the Clear key to clear the count. If a count is mistakenly cleared, press the Stop key to undo the clearing command.

NOTE

The copier gives the M2 display when the count of IU, Developer, Blade, or Fusing reaches the setting. It also gives the M4 display when the Drum count reaches 80K.

(9) Input Paper Size

÷ This function allows the Tech. Rep. to enter the size of the paper loaded in each drawer.

<Setting Procedure>

1. Each press of the Paper Select key changes the contents of the display in the following order.

Order	Description	Order	Description
1	2nd DRAWER (FD)	4	3rd DRAWER (CD)
2	2nd DRAWER (CD)	5	4th DRAWER (FD)
3	3rd DRAWER (FD)	6	4th DRAWER (CD)

2. Show the paper size to be set and press the Clear key to clear the current size.
3. From the Keypad, enter the new paper size.

(10) Display Test

÷ This function, when invoked, causes all LEDs on the control panel to blink and the Message Display to alternate between black and white to determine if the control panel is fully operational.

<Setting Procedure>

1. Press the Start key to start the check sequence.
2. Press the Panel Reset key to go back to the Tech. Rep. Mode menu screen.

(11) ROM Version

÷ This function displays the current ROM version.

MAIN: 1177-XXXXXX-XX

(12) Application Counters

÷ This function gives the count by different applications.

<Setting Procedure>

÷ Each press of the Paper Select key changes the contents of the display in the following order.

Order	Description	Order	Description
1	COPY	3	———
2	———	4	———

<Clearing a Count>

1. Show the count of the counter to be cleared.
2. Press the Clear key to clear the count. If a count is mistakenly cleared, press the Stop key to undo the clearing command.

(13) Marketing Area

÷ This function is used to change the settings of fixed zoom ratios and paper sizes applicable to each marketing area.

<Setting Procedure>

1. Press the Clear key to clear the number that corresponds to the current marketing area.

No.	Description	No.	Description
0	Taiwan	2	Inch areas
1	Metric areas	3	Others

2. From the Keypad, enter the number that corresponds to the applicable marketing area.
3. Perform initialization to validate the new marketing area setting.

(14) Service Call No.

÷ This function allows the Tech. Rep. to set the telephone number that is displayed when a malfunction or a condition requiring a Tech. Rep. call occurs.

<Setting Procedure>

1. Press the Clear key to clear the current telephone number.
2. From the Keypad, enter the new telephone number (that can consist of up to 20 digits).
   ✽: Space; #: -

9 ADJUST MODE

÷ The Adjust mode is used for adjustments made at the factory.

9-1. Functions Available in the Adjust Mode

Function No.	Name
1	REGISTRATION (FD)
2	IR/REGISTRATION (CD)
3	IR/REGISTRATION (FD)
4	IR/ZOOM (CD) <COPY>

Function No.	Name
6	IR/ZOOM (FD) <COPY>
8	ATDC SENSOR (MANUAL)
9	IR/SHADING POSITION

9-2. Entering the Adjust Mode

<Procedure>

1. Show the Tech. Rep. Mode menu screen.
2. Perform the following steps to set the copier into the Adjust mode.

   Press the Stop key. ➢ Press the Start key.

3. From the Keypad, enter the number that corresponds to the particular adjust mode function to be used.
4. Press the Start key. This shows the currently set data value.
5. From the Keypad, enter the desired data value.
6. Press the Start key to validate the new data value entered.

<Leaving the Adjust Mode>

÷ Press the Panel Reset key.

9-3. Settings in the Adjust Mode

Tech. Rep. Mode ▶ Adjust

<table>
<tr><th>Adjust Function No.</th><th>Setting (The default is Highlighted).</th></tr>
<tr><td>1</td><td><REGISTRATION (FD)>
Adjusts registration in the sub-scanning direction on the engine side.
<table><tr><td>Data</td><td>74 ..... 100 ..... 126</td></tr><tr><td>Description</td><td>Approx. -6mm..... 0mm.....Approx. +6mm</td></tr></table>Variable in approx. 0.23-mm increments.</td></tr>
<tr><td>2</td><td><IR/REGISTRATION (CD)>
Adjusts registration in the main scanning direction on the IR side.
<table><tr><td>Data</td><td>36 ..... 100 ..... 164</td></tr><tr><td>Description</td><td>Approx. -5.4mm..... 0mm.....Approx. +5.4mm</td></tr></table>Variable in approx. 0.08-mm increments.</td></tr>
<tr><td>3</td><td><IR/REGISTRATION (FD)>
Adjusts registration in the sub-scanning direction on the IR side.
<table><tr><td>Data</td><td>84 ..... 100 ..... 116</td></tr><tr><td>Description</td><td>Approx. -2mm..... 0mm.....Approx. +2mm</td></tr></table>Variable in approx. 0.13-mm increments.</td></tr>
<tr><td>4</td><td><IR/ZOOM (CD) COPY>
Adjusts the zoom ratio in the main scanning direction on the IR side (during a copy cycle).
<table><tr><td>Data</td><td>90 ..... 100 ..... 110</td></tr><tr><td>Description</td><td>∝0.990 ////////////// ∝1.000 ////////////////// ∝1.010</td></tr></table></td></tr>
<tr><td>6</td><td><IR/ZOOM (FD) COPY>
Adjusts the zoom ratio in the sub-scanning direction on the IR side (during a copy cycle).
<table><tr><td>Data</td><td>90 ..... 100 ..... 110</td></tr><tr><td>Description</td><td>∝0.990 ////////////// ∝1.000 ////////////////// ∝1.010</td></tr></table></td></tr>
</table>

<table>
<tr><th>Adjust Function No.</th><th>Setting (The default is Highlighted).</th></tr>
<tr><td>8</td><td><ATDC SENSOR (MANUAL)>
Makes a manual adjustment of ATDC Sensor gain.
<table><tr><td>Data</td><td>80 ..... 129 ..... 170</td></tr><tr><td>Description</td><td>Darker .... Lighter</td></tr></table></td></tr>
<tr><td>9</td><td><IR/SHADING POSITION>
Corrects the IR shading position.
<table><tr><td>Data</td><td>60 ..... 100 ..... 140</td></tr><tr><td>Description</td><td>Approx. -5mm..... 0 .....Approx. +5mm</td></tr></table>Variable in approx. 0.13-mm increments.</td></tr>
</table>

10 SECURITY MODE

+ This function allows the Tech. Rep. to set counters.

10-1. Functions Available in the Security Mode

Function No.	Name
1	PLUG-IN COUNTER
2	SIZE COUNTER
3	TOTAL COUNTER

10-2. Entering the Security Mode

<Procedure>

1. Show the Tech. Rep. Mode menu screen.
2. Perform the following steps to set the copier into the Security mode.

   Press the Stop key. ➢ Press “9” from the Keypad.

3. From the Keypad, enter the number that corresponds to the particular security mode function to be set.
4. Press the Start key. This shows the currently set data value.
5. From the Keypad, enter the desired data value.
6. Press the Start key to validate the new data value entered.

<Leaving the Security Mode>

+ Press the Panel Reset key.

10-3. Settings in the Security Mode

Tech. Rep. Mode ▶ Security Mode

<table>
<tr><th>Security Function No.</th><th>Setting (The default is Highlighted).</th></tr>
<tr><td>1</td><td>
<PLUG-IN COUNTER>
Select whether a Plug-In Counter is plugged in or not.
<table>
<tr><td>Data</td><td>0</td><td>1</td></tr>
<tr><td>Description</td><td>Not plugged in</td><td>Plugged in</td></tr>
</table>
</td></tr>
<tr><td>2</td><td>
<SIZE COUNTER>
Select the size of the paper to be counted by the Size Counter.
<table>
<tr><th>Data</th><th>Description</th><th>Data</th><th>Description</th></tr>
<tr><td>0</td><td>No Count</td><td>2</td><td>A3/B4/11∝17/ Legal</td></tr>
<tr><td>1</td><td>A3/11∝17</td><td>3</td><td>A3/B4/FLS/11∝17/ 11∝14/Legal</td></tr>
</table>
</td></tr>
<tr><td>3</td><td>
<TOTAL COUNTER>
Select the conditions by which the Total Counter count is increased.
<table>
<tr><th>Data</th><th>Description</th></tr>
<tr><td>0</td><td>1 count per 1 copy</td></tr>
<tr><td>1</td><td>Multiple count-up according to paper size</td></tr>
<tr><td>2</td><td>Multiple count-up according to paper size</td></tr>
</table>
<COUNT-UP TABLE>
<table>
<tr><td>Copying</td><td colspan="6">1-Sided</td></tr>
<tr><td>Size Counter (Function No. 2)</td><td colspan="3">Sizes other than those set</td><td colspan="3">Set sizes</td></tr>
<tr><td>Total Counter (Function No. 3)</td><td>0</td><td>1</td><td>2</td><td>0</td><td>1</td><td>2</td></tr>
<tr><td>Total Counter</td><td colspan="3">1</td><td>1</td><td>2</td><td>2</td></tr>
<tr><td>Size Counter</td><td colspan="3">0</td><td>1</td><td>1</td><td>2</td></tr>
</table>
0: No count; 1: 1 count; 2: 2 counts
</td></tr>
</table>

TROUBLESHOOTING

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11 INTRODUCTION

11-1. Reading the Text

1. The paper transport failure troubleshooting procedures are given according to the symptom. First identify the location where the paper is present and start the procedure for that particular location. For malfunction troubleshooting, start with step 1 and onward.
2. Make checks in the numerical order of steps and, if an item is checked okay, go to the next step.

Pattern 1

Step	Check	Result	Action
1	~	YES	~
2		↑	

Go to step 2 if you answered No.

Pattern 2

Step	Check	Result	Action
1	~	YES	~
		NO	~
2			↑

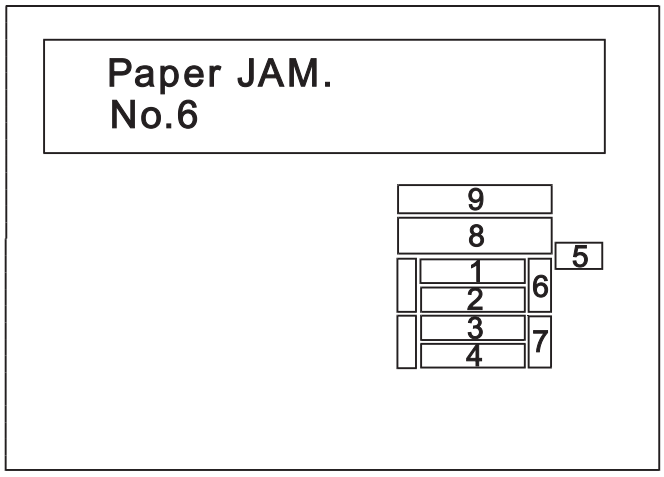
Go to step 2 if it checks okay.

12 PAPER TRANSPORT FAILURE

12-1. Paper Misfeed

÷ When a paper misfeed occurs, the Message Display shows the corresponding message, misfeed location, and paper location.

NOTE
No messages appear on the display for locations no. 1 to 5.



1177T02YA

Lit	Misfeed/Paper Location	Action Ref. Page	OP
6	Paper take-up	(1)	
6, 8	Paper take-up	(1)	
8	Multi bypass take-up	(2)	
8	Transport/Separator	(3)	
8	Fusing/Exit	(4)	
7	Cabinet paper take-up	(5) (6)	✽
6, 7	Cabinet paper take-up	(5) (6)	✽
9	ADF	See the relevant option manual.	✽

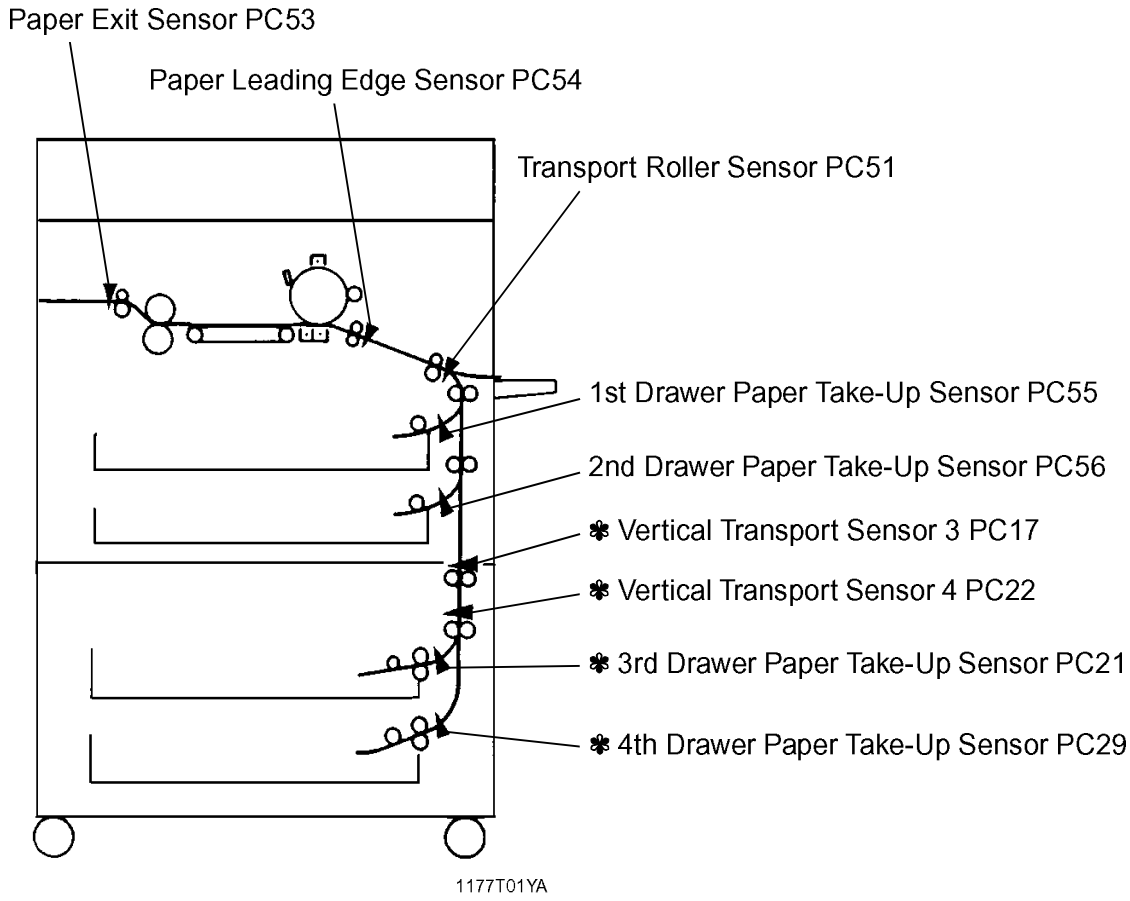
✽ When the option is mounted.

<Resetting misfeed display>

Misfeed in the copier	Open the relevant door, remove the misfeed and paper left inside, and close the door.
Misfeed in the option	

12-2. Misfeed Detection Sensor Layout

✽ When the option is mounted.


Paper Exit Sensor PC53
Paper Leading Edge Sensor PC54
Transport Roller Sensor PC51
1st Drawer Paper Take-Up Sensor PC55
2nd Drawer Paper Take-Up Sensor PC56
✽ Vertical Transport Sensor 3 PC17
✽ Vertical Transport Sensor 4 PC22
✽ 3rd Drawer Paper Take-Up Sensor PC21
✽ 4th Drawer Paper Take-Up Sensor PC29
1177T01YA

12-3. Types of Misfeed Detection and Detection Timings

- The following lists the types of misfeed detection and detection timings for different misfeed locations within the copier.
- The symbol “L” (for the leading edge) and “T” (for the trailing edge) given in ( ) indicate the particular edge of the paper detected by the sensor.

NOTE

For the types of misfeed detection and detection timings of options, see the relevant option service manual.

<Copier Paper Take-Up Misfeed>

Type	Detection Start	Detection
Paper take-up failure detection	1st Drawer Paper Take-Up Solenoid energized	1st Drawer Paper Take-Up Sensor (L)
	2nd Drawer Paper Take-Up Solenoid energized	2nd Drawer Paper Take-Up Sensor (L)
Paper take-up trailing edge detection	1st Drawer Paper Take-Up Sensor (L)	1st Drawer Paper Take-Up Sensor (T)
	2nd Drawer Paper Take-Up Sensor (L)	2nd Drawer Paper Take-Up Sensor (T)
Leading edge detection by Transport Roller Sensor	1st Drawer Paper Take-Up Sensor (L)	Transport Roller Sensor (L)
	2nd Drawer Paper Take-Up Sensor (L)	Transport Roller Sensor (L)

<Multi Bypass Misfeed>

Type	Detection Start	Detection
Bypass paper take-up failure detection	Manual Feed Paper Take-Up Clutch energized	Transport Roller Sensor (L)
Leading edge detection by Paper Leading Edge Sensor	Transport Roller Sensor (L)	Paper Leading Edge Sensor (L)

<Transport/Separator Misfeed>

Type	Detection Start	Detection
Trailing edge detection by Transport Roller Sensor	TRON signal	Transport Roller Sensor (T)
Leading edge detection by Paper Leading Edge Sensor	Transport Roller Sensor (L)	Paper Leading Edge Sensor (L)
Trailing edge detection by Paper Leading Edge Sensor	Transport Roller Sensor (T)	Paper Leading Edge Sensor (T)

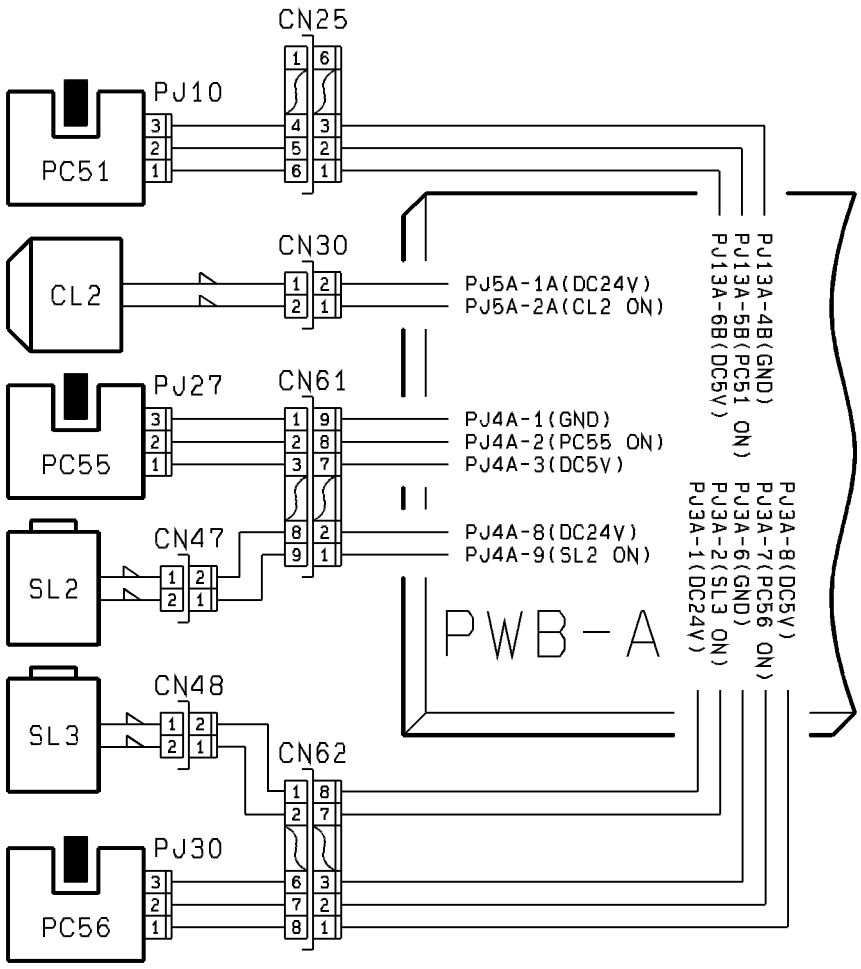
<Fusing/Exit Misfeed>

Type	Detection Start	Detection
Leading edge detection by Paper Exit Sensor	TRON signal	Paper Exit Sensor (L)
Trailing edge detection by Paper Exit Sensor	Paper Leading Edge Sensor (T)	Paper Exit Sensor (T)

12-4. Misfeed Clearing Procedures

(1) Copier Paper Take-Up Misfeed

Relevant Electrical Parts	
Transport Roller Sensor PC51 1st Drawer Paper Take-Up Sensor PC55 2nd Drawer Paper Take-Up Sensor PC56	1st Drawer Paper Take-Up Solenoid SL2 2nd Drawer Paper Take-Up Solenoid SL3 Transport Roller Clutch CL2 Master Board PWB-A



1177C01TAA

Copier Paper Take-Up Misfeed Clearing Procedure

+ Paper is not taken up at all.

Step	Check	Result	Action
1	Paper meets product specifications	NO	Change paper.
2	Paper is curled, wavy, or damp.	YES	Change paper. Instruct user in correct paper storage.
3	Edge Guide and Trailing Edge Stop is at correct position to accommodate paper.	NO	Set.
4	Paper Separator Fingers are dirty and deformed.	YES	Clean or change.
5	Clutch spring is deformed	YES	Change.
6	Paper Take-Up Roll is deformed, worn, and has paper dust	YES	Clean or change.
7	1st Drawer Paper Take-Up Solenoid operation: the voltage across PJ4A-9 on the Master Board and GND is DC24V (solenoid deenergized) and DC0V (solenoid energized) when the Start key is pressed.	YES	Change solenoid.
		NO	Change Master Board.
8	2nd Drawer Paper Take-Up Solenoid operation: the voltage across PJ3A-2 on the Master Board and GND is DC24V (solenoid deenergized) and DC0V (solenoid energized) when the Start key is pressed.	YES	Change solenoid.
		NO	Change Master Board.
9	Transport Roller Clutch operation: the voltage across PJ5A-2A on the Master Board and GND is DC24V (clutch deenergized) and DC0V (clutch energized) when the Start key is pressed.	YES	Change clutch.
		NO	Change Master Board.

+ Paper is at a stop in the Vertical Transport Section.

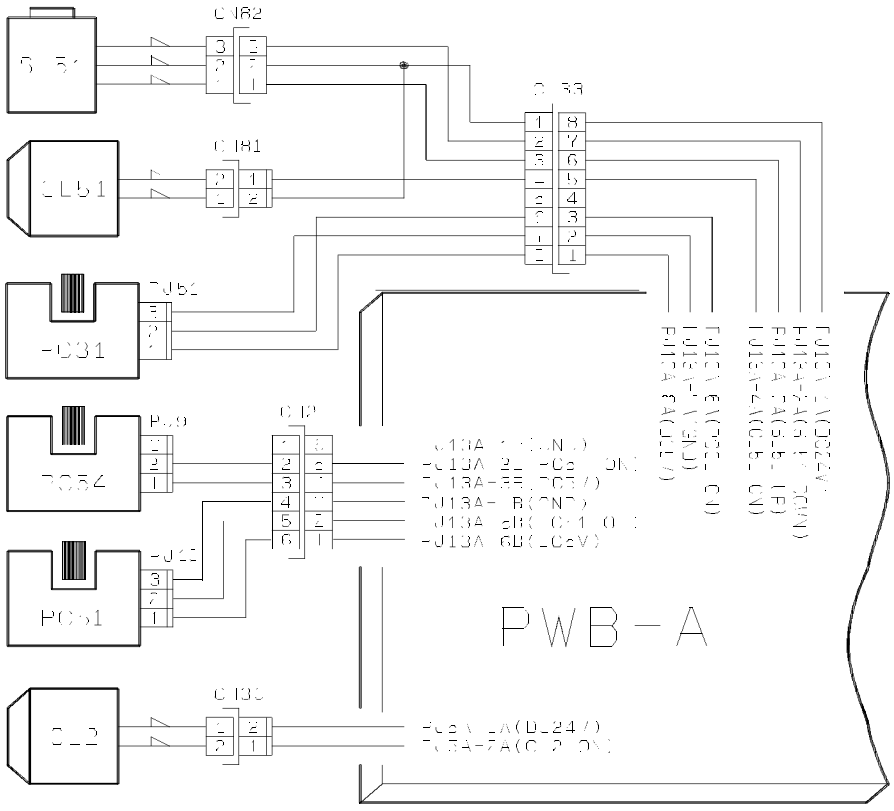
Step	Check	Result	Action
1	Vertical Transport Rollers are deformed, worn, and have paper dust	YES	Clean or change.
2	Paper Take-Up Guide Plate and Vertical Transport Guide Plate is dirty and deformed.	YES	Clean, correct, or change.
3	1st Drawer Paper Take-Up Sensor operation: the voltage across PJ4A-2 on the Master Board and GND is DC5V (sensor unblocked) and DC0V (sensor blocked).	YES	Change Master Board.
		NO	Correct actuator. Change sensor.
4	2nd Drawer Paper Take-Up Sensor operation: the voltage across PJ3A-7 on the Master Board and GND is DC5V (sensor unblocked) and DC0V (sensor blocked).	YES	Change Master Board.
		NO	Correct actuator. Change sensor.

÷ Paper is at a stop at the Transport Rollers.

Step	Check	Result	Action
1	Transport Rollers are deformed, worn, and have paper dust	YES	Clean or change.
2	Transport Roller Sensor operation: the voltage across PJ13A-5B on the Master Board and GND is DC5V (sensor unblocked) and DC0V (sensor blocked).	YES	Change Master Board.
		NO	Correct actuator. Change sensor.

(2) Multi Bypass Misfeed

Relevant Electrical Parts	
Manual Feed Empty Sensor PC31 Transport Roller Sensor PC51 Paper Leading Edge Sensor PC54 Manual Feed Paper Take-Up Solenoid SL51	Transport Roller Clutch CL2 Manual Feed Paper Take-Up Clutch CL51 Master Board PWB-A



1177C02TAB

Multi Bypass Misfeed Clearing Procedure

÷ Paper is not detected.

Step	Check	Result	Action
1	Manual Feed Empty Sensor operation: the voltage across PJ13A-6A on the Master Board and GND is DC5V (sensor unblocked) and DC0V (sensor blocked).	YES	Change Master Board.
		NO	Correct actuator. Change sensor.

÷ Paper is not taken up at all.

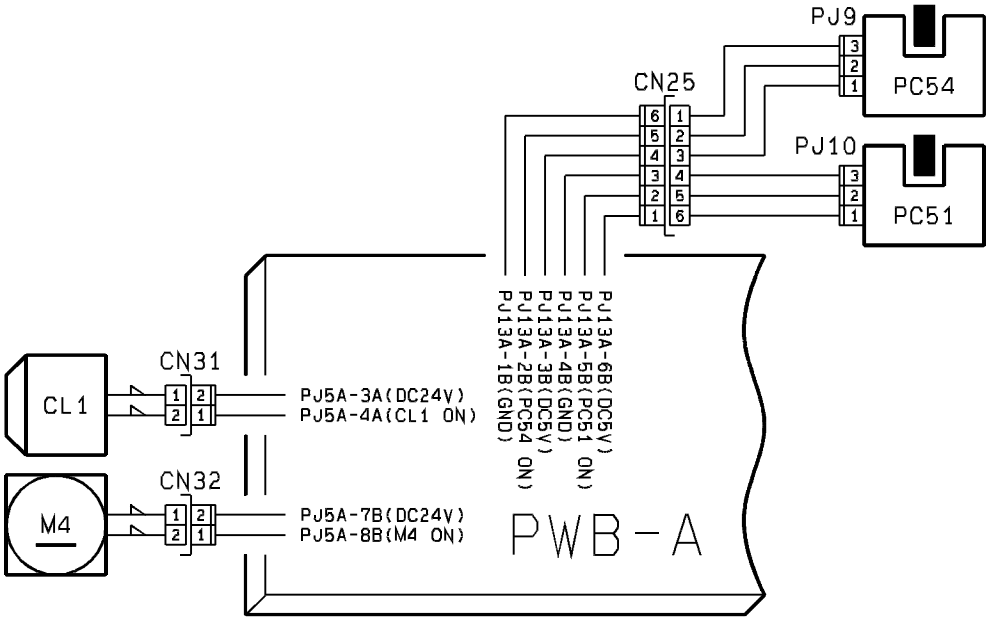
Step	Check	Result	Action
1	Paper meets product specifications	NO	Change paper.
2	Paper is curled, wavy, and damp.	YES	Change paper. Instruct user in correct paper storage.
3	Friction Pad and guide plate are deformed and dirty.	YES	Clean or change.
4	Manual Bypass Take-Up Roll is deformed, worn, and has paper dust	YES	Clean or change.
5	Manual Feed Paper Take-Up Clutch operation: the voltage across PJ13A-4A on the Master Board and GND is DC24V (clutch deenergized) and DC0V (clutch energized) when the Start key is pressed with paper loaded in the Multi Bypass Tray.	YES	Change clutch.
		NO	Change Master Board.
6	Manual Feed Paper Take-Up Solenoid operation: the voltage across PJ13A-2A on the Master Board and GND is DC24V (solenoid deenergized) and DC0V (solenoid energized) when the Start key is pressed with paper loaded in the Multi Bypass Tray.	YES	Adjust stroke. Change solenoid.
		NO	Change Master Board.

÷ Paper is at a stop near the Transport Rollers.

Step	Check	Result	Action
1	Transport Rollers and guide plate are deformed, worn, and have paper dust	YES	Clean or change.
2	Transport Roller Sensor operation: the voltage across PJ13A-5B on the Master Board and GND is DC5V (sensor unblocked) and DC0V (sensor blocked).	YES	Change Master Board.
		NO	Correct actuator. Change sensor.
3	Paper Leading Edge Sensor operation: the voltage across PJ13A-2B on the Master Board and GND is DC5V (sensor unblocked) and DC0V (sensor blocked).	YES	Change Master Board.
		NO	Correct actuator. Change sensor.
4	Transport Roller Clutch operation: the voltage across PJ5A-2A on the Master Board and GND is DC24V (clutch deenergized) and DC0V (clutch energized) when the Start key is pressed.	YES	Change clutch.
		NO	Change Master Board.

(3) Transport/Separator Misfeed

Relevant Electrical Parts	
Transport Roller Sensor PC51 Paper Leading Edge Sensor PC54 Synchronizing Roller Clutch CL1	Suction Fan Motor M4 Master Board PWB-A



1173C03TAA

Transport/Separator Misfeed Clearing Procedure

+ Paper is at a stop at the Synchronizing Rollers.

Step	Check	Result	Action
1	Synchronizing Rollers are deformed, worn, and have paper dust	YES	Clean or change.
2	The length of the loop formed before the Synchronizing Rollers is okay.	NO	Adjust loop length.
3	Synchronizing Roller Clutch operation: the voltage across PJ5A-4A on the Master Board and GND is DC24V (clutch deenergized) and DC0V (clutch energized) when the Start key is pressed.	YES	Change clutch.
		NO	Change Master Board.
4	Paper Leading Edge Sensor operation: the voltage across PJ13A-2B on the Master Board and GND is DC5V (sensor unblocked) and DC0V (sensor blocked).	YES	Change Master Board.
		NO	Correct actuator. Change sensor.

+ Paper is at a stop near the PC Drum.

Step	Check	Result	Action
1	Pre-Image Transfer Guide Plate is dirty and deformed	YES	Clean or change.
2	Image Transfer/Paper Separator Corona wires are dirty and deteriorated	YES	Clean or change.
3	Paper guide above Paper Separator Corona is dirty and deformed	YES	Clean or change.

+ Paper is at a stop at the PC Drum Paper Separator Fingers.

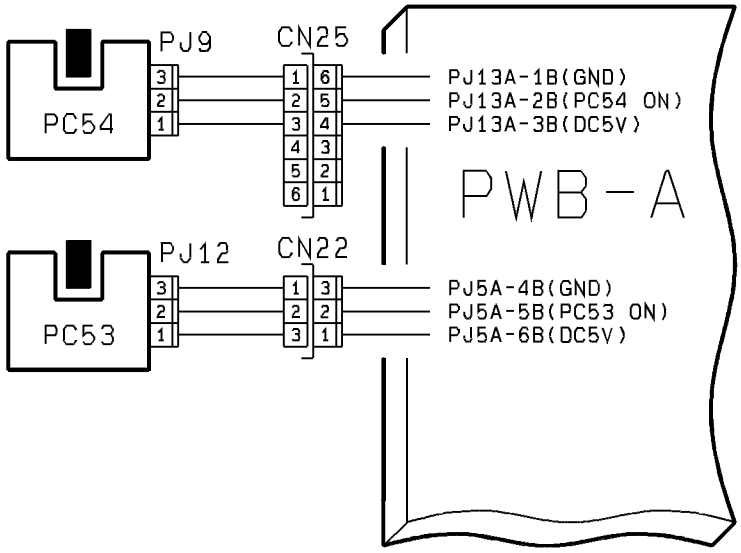
Step	Check	Result	Action
1	PC Drum Paper Separator Fingers are dirty and deformed.	YES	Clean or change.

+ Paper is at a stop on the Suction Belts.

Step	Check	Result	Action
1	Transport Roller Sensor operation: the voltage across PJ13A-5B on the Master Board and GND is DC5V (sensor unblocked) and DC0V (sensor blocked).	YES	Change Master Board.
		NO	Correct actuator. Change sensor.
2	Paper Leading Edge Sensor operation: the voltage across PJ13A-2B on the Master Board and GND is DC5V (sensor unblocked) and DC0V (sensor blocked).	YES	Change Master Board.
		NO	Correct actuator. Change sensor.
3	Suction Belts turn correctly.	NO	Correct the drive coupling.
4	Suction Fan Motor operation: the voltage across PJ5A-8B on the Master Board and GND is DC24V (motor deenergized) and DC0V (motor energized) when the Start key is pressed.	YES	Change Suction Belts and motor.
		NO	Change Master Board.

(4) Fusing/Exit Misfeed

Relevant Electrical Parts	
Paper Exit Sensor PC53 Paper Leading Edge Sensor PC54	Master Board PWB-A



1177C04TAB

Fusing/Exit Misfeed Clearing Procedure

÷ Paper is at a stop at the Fusing Unit.

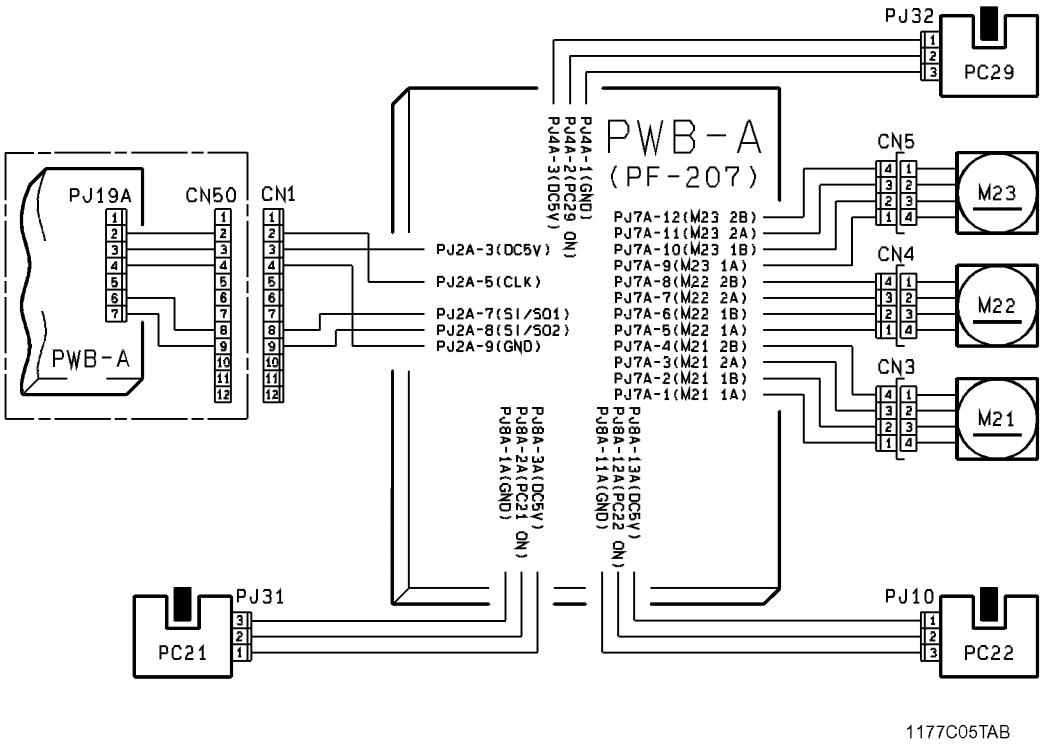
Step	Check	Result	Action
1	Fusing Guide Plate is dirty and deformed	YES	Clean or change.
2	Fusing Rollers are dirty and scratched	YES	Clean or change.
3	Fusing Roller Paper Separator Fingers are deformed, worn, and dirty.	YES	Clean, correct, or change.
4	Cleaning Roller is dirty and scratched.	YES	Clean or change.

÷ Paper is at a stop at the exit section.

Step	Check	Result	Action
1	Paper Exit Sensor operation: the voltage across PJ5A-5B on the Master Board and GND is DC0V (sensor blocked) and DC5V (sensor unblocked).	YES	Change Master Board.
		NO	Correct actuator. Change sensor.
2	Paper Leading Edge Sensor operation: the voltage across PJ13A-2B on the Master Board and GND is DC5V (sensor unblocked) and DC0V (sensor blocked).	YES	Change Master Board.
		NO	Correct actuator. Change sensor.

(5) PF-207 Paper Take-Up Misfeed

Relevant Electrical Parts	
3rd Drawer Paper Take-Up Sensor PC21	3rd Drawer Paper Take-Up Motor M22
4th Drawer Paper Take-Up Sensor PC29	4th Drawer Paper Take-Up Motor M23
Vertical Transport Sensor 4 PC22	Master Board PWB-A
Vertical Transport Motor M21	PF-207 Master Board PWB-A



1177C05TAB

PF-207 Paper Take-Up Misfeed Clearing Procedure

÷ Paper is not taken up at all.

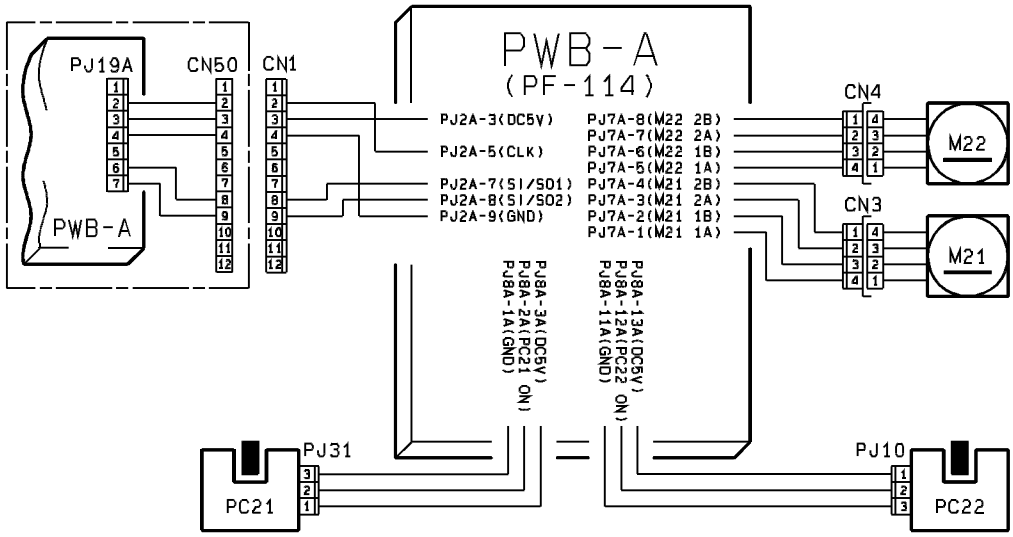
Step	Check	Result	Action
1	Paper meets product specifications.	NO	Change paper.
2	Paper is curled, wavy, and damp.	YES	Change paper. Instruct user in correct paper storage.
3	Paper Take-Up/Separator Rolls are deformed, worn, and have paper dust	YES	Clean or change.
4	Paper Take-Up Motor turns when the Start key is pressed	NO	Correct the drive coupling. Change motor, PF-207 Master Board, and/or Master Board.

÷ Paper is at a stop at the Vertical Transport Rollers.

Step	Check	Result	Action
1	Vertical Transport Rollers are deformed, worn, and have paper dust	YES	Clean or change.
2	Paper take-up guide plate and vertical transport guide plate are dirty and deformed.	YES	Clean, correct, or change.
3	Vertical Transport Motor turns when the Start key is pressed	NO	Correct the drive coupling. Change motor, PF-207 Master Board, and/or Master Board.
4	3rd Drawer Paper Take-Up Sensor operation: the voltage across PJ8A-2A on the PF-207 Master Board and GND is DC5V (sensor unblocked) and DC0V (sensor blocked).	YES	Change PF-207 Master Board and Master Board.
		NO	Correct actuator. Change sensor.
5	4th Drawer Paper Take-Up Sensor operation: the voltage across PJ4A-2 on the PF-207 Master Board and GND is DC5V (sensor unblocked) and DC0V (sensor blocked).	YES	Change PF-207 Master Board and Master Board.
		NO	Correct actuator. Change sensor.
6	Vertical Transport Sensor 4 operation: the voltage across PJ8A-12A on the PF-207 Master Board and GND is DC5V (sensor unblocked) and DC0V (sensor blocked).	YES	Change PF-207 Master Board and Master Board.
		NO	Correct actuator. Change sensor.

(6) PF-114 Paper Take-Up Misfeed

Relevant Electrical Parts	
3rd Drawer Paper Take-Up Sensor PC21 Vertical Transport Sensor 4 PC22 Vertical Transport Motor M21	3rd Drawer Paper Take-Up Motor M22 Master Board PWB-A PF-114 Master Board PWB-A



1177C06TAB

PF-114 Paper Take-Up Misfeed Clearing Procedure

÷ Paper is not taken up at all.

Step	Check	Result	Action
1	Paper meets product specifications	NO	Change paper.
2	Paper is curled, wavy, and damp	YES	Change paper. Instruct user in correct paper storage.
3	Paper Take-Up/Separator Rolls are deformed, worn, and have paper dust	YES	Clean or change.
4	Paper Take-Up Motor turns when the Start key is pressed	NO	Correct the drive coupling. Change motor, PF-114 Master Board, and/or Master Board.

÷ Paper is at a stop at the Vertical Transport Rollers.

Step	Check	Result	Action
1	Vertical Transport Rollers are deformed, worn, and have paper dust	YES	Clean or change.
2	Paper take-up guide plate and vertical transport guide plate are dirty and deformed.	YES	Clean, correct, or change.
3	Vertical Transport Motor turns when the Start key is pressed	NO	Correct the drive coupling. Change motor, PF-114 Master Board, and/or Master Board.
4	3rd Drawer Paper Take-Up Sensor operation: the voltage across PJ8A-2A on the PF-114 Master Board and GND is DC5V (sensor unblocked) and DC0V (sensor blocked).	YES	Change PF-114 Master Board and Master Board.
		NO	Correct actuator. Change sensor.
5	Vertical Transport Sensor 4 operation: the voltage across PJ8A-12A on the PF-114 Master Board and GND is DC5V (sensor unblocked) and DC0V (sensor blocked).	YES	Change PF-114 Master Board and Master Board.
		NO	Correct actuator. Change sensor.

13 MALFUNCTIONS

The copier's CPU is equipped with a self-diagnostics function that, on detecting a malfunction, gives the corresponding malfunction code on the Message Display.

Resetting a Malfunction

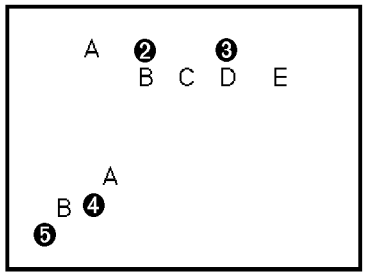
- *Press the Trouble Reset Switch on the master Board for the fusing malfunctions.*
- *Open and close the Front Door for any other malfunction.*

13-1. Detection Timing Classified by Malfunction Code

Code	Description	Detection Timing
C0000	Lower Drive Motor's failure to turn	The Lock signal remains HIGH for a continuous 1-sec. or more period 1sec. after the motor is energized.
C0001	Lower Drive Motor turning at abnormal timing	The Lock signal remains LOW for a continuous 1-sec. or more period 1sec. after the motor is deenergized.
C0010	Upper Drive Motor's failure to turn	The Lock signal remains HIGH for a continuous 1-sec. or more period 1sec. after the motor is energized.
C0011	Upper Drive Motor turning at abnormal timing	The Lock signal remains LOW for a continuous 1-sec. or more period 1sec. after the motor is deenergized.
C004A	Optical Section Cooling Fan Motor's failure to turn	The Lock signal remains HIGH 1sec. after the motor is energized.
C004b	Optical Section Cooling Fan Motor turning at abnormal timing	The Lock signal remains LOW 1sec. after the motor is deenergized.
C004C	Ventilation Fan Motor's failure to turn	÷ The Lock signal remains HIGH for a continuous 12-sec. or more period while the motor is energized (turning at high speed) when the Power Switch is turned ON. ÷ The Lock signal remains HIGH for a continuous 3-sec. or more period while the motor is energized (turning at high speed) during a copy cycle.
C004E	Power Supply Unit Cooling Fan Motor's failure to turn	The Lock signal remains HIGH for a continuous 1-sec. or more period 5sec. after the motor is energized (turning at high speed).
C0070	Toner Replenishing Motor's failure to turn	÷ The Toner Bottle Home Position Sensor does not go from LOW to HIGH within 12 sec. after the motor has been energized. ÷ The Toner Bottle Home Position Sensor does not go LOW within 12 sec. after the motor has been energized and the sensor has gone HIGH.
C0071	Toner Replenishing Motor turning at abnormal timing	The Toner Bottle Home Position Sensor is HIGH after the lapse of 2 sec. after the motor has been deenergized.

Code	Description	Detection Timing
C0420	Exposure Lamp turning ON at abnormal timing	The average value of one line exceeds a predetermined level during clamp adjustment.
C0500	Warming-up failure	The surface temperature of the Upper Fusing Roller does not reach a given level even after the lapse of a given period of time during warming-up as detailed below: ÷ From room temperature to 50°C: Within 20 sec. ÷ From 50°C to 90°C: Within 20 sec. ÷ From 90°C to 150°C: Within 20 sec. The copier fails to complete its warm-up cycle within 15 sec. after the temperature has reached 150°C.
C0510	Abnormally low fusing temperature	The surface temperature of the Upper Fusing Roller remains less than 135°C for a continuous 1-sec. or more period after the copier has completed warming up.
C0520	Abnormally high fusing temperature	The surface temperature of the Upper Fusing Roller remains 230°C or more for a continuous 1-sec. or more period after the copier has completed warming up.
C0600	Scanner Motor malfunction	÷ When the Scanner is at a position other than home, the Scanner Home Sensor does not go from HIGH to LOW even after the lapse of 20 sec. after the Power Switch has been turned ON. ÷ When the Scanner is at the home position, the Scanner Home Sensor does not go from LOW to HIGH even after the lapse of 10 sec. after the Scanner has started its scan motion. ÷ The Scanner Home Sensor does not go from HIGH to LOW even after the lapse of 40 sec. after the Scanner has started its scan motion.
C0900	3rd Drawer Lift-Up Sensor malfunction	See the relevant option service manual.
C0904	3rd Drawer Lift-Up Motor malfunction	
C0950	4th Drawer Lift-Up Sensor malfunction	
C0954	4th Drawer Lift-Up Motor malfunction	

Code	Description	Detection Timing
C0990	Main Tray upward motion failure	See the relevant option service manual.
C0991	Main Tray downward motion failure	
C0992	Main Tray downward motion failure	
C0993	Main Tray upward motion failure	
C0994	Elevator Motor's failure to turn	
C0996	3rd Drawer lock release failure	
C0998	Shifter transfer failure	
C0999	Shifter return failure	
C099A	Shifter return failure	
C099b	Shifter transfer failure	
C099c	Shift Motor's failure to turn	
C099E	Shift Gate position detecting failure	
C099F	Shift Gate position detecting failure	
C0F02	Original Size Detecting Board malfunction	Either the Original Size Detecting Board is faulty or an error occurs in communications with the Master Board. <During a copy cycle> A fixed-cycle pulse signal (Busy) remains HIGH or LOW for 0.5 sec. or more. <When the Power Switch is turned ON> A fixed-cycle pulse signal (Busy) remains HIGH or LOW for 5 sec. or more.
C0F30	ATDC Sensor malfunction	The output from the ATDC Sensor remains less than 0.5V, or 4.5V or more, for a continuous 2-sec. period at any time 2 sec. after the Upper Drive Motor has started turning.
C0F31	ATDC Sensor adjustment failure	The ATDC Sensor output does not fall within the target range (2.46 to 2.57V) in the F8 mode.
C0F79	÷ 3rd Drawer Paper Empty Sensor failure ÷ Main Tray Paper Empty Board failure ÷ Shift Tray Paper Empty Sensor failure	See the relevant option service manual.

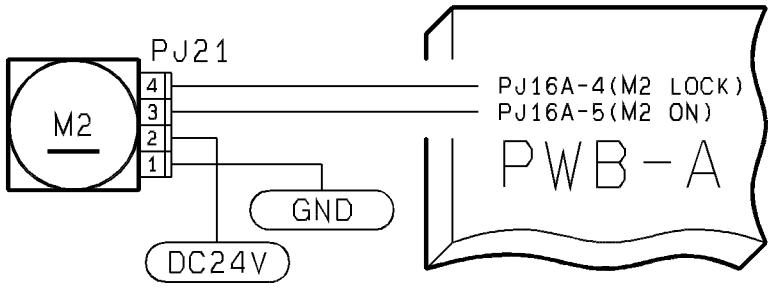
Code	Description	Detection Timing
C0FE2	Original Size Detecting Sensor ❸ failure	<Detection Timing> After having read the output data from the Original Size Detecting Sensors, the Original Size Detecting Board determines that there is a failure. <Sensor Layout> ❸: FD2, ❹: FD3 ❺: CD1, ❻: CD2 ✽ Sensor option setting depends on the area. ÷ A to E: Sensor locations  1174T001AA
C0FE4	Original Size Detecting Sensor ❹ failure	
C0FE6	Original Size Detecting Sensors ❸ and ❹ failure	
C0FE8	Original Size Detecting Sensor ❺ failure	
C0FEA	Original Size Detecting Sensors ❸ and ❺ failure	
C0FEC	Original Size Detecting Sensors ❹ and ❺ failure	
C0FEE	Original Size Detecting Sensors ❸, ❹, and ❺ failure	
C0FF0	Original Size Detecting Sensor ❻ failure	
C0FF2	Original Size Detecting Sensors ❸ and ❻ failure	
C0FF4	Original Size Detecting Sensors ❹ and ❻ failure	
C0FF6	Original Size Detecting Sensors ❸, ❹, and ❻ failure	
C0FF8	Original Size Detecting Sensors ❺ and ❻ failure	
C0FFA	Original Size Detecting Sensors ❸, ❺, and ❻ failure	
C0FFC	Original Size Detecting Sensors ❹, ❺, and ❻ failure	

Code	Description	Detection Timing
C1163	Master Board failure including a unit failure of QM Coder	A reset, encoding, or decoding termination interrupt signal is not received, or an encoding or decoding error occurs.
C1200	Master Board failure including a unit failure of memory	The range over which data can be read from DRAM is smaller than the standard memory (16MB).
C1220	Master Board failure including a unit failure of ASIC1	DMA termination interrrupt signal is not received.
C1300	Polygon Motor's failure to turn	÷ The Lock signal remains HIGH 5 sec. after the motor has started turning. ÷ The Lock signal does not go LOW even once for a 1-sec. period at any time 1 sec. after the motor has started turning. ÷ The Lock signal remains HIGH for a continuous 0.5-sec. or more period while the motor is energized.
C1301	Polygon Motor turning at abnormal timing	The Lock signal remains LOW for a continuous 5-sec. or more period while the motor is deenergized.
C13F0	SOS Sensor failure	After the lapse of a 5-sec. period after an SOS has been detected, no new SOS is detected.
C1440	Exposure Lamp out or a circuit failure	÷ Exposure Lamp out The average value (ODD, EVEN) of one line of gain adjustment value is smaller than a predetermined level during gain adjustment. ÷ Circuit failure The average value of one line falls outside a predetermined range.
C1441	Clamp adjustment failure	The average value of one line of clamp adjustment value is smaller than a predetermined level during clamp adjustment.

13-2. Troubleshooting Procedures

(1) C0000: Lower Drive Motor's Failure to Turn
C0001: Lower Drive Motor Turning at Abnormal Timing

Relevant Electrical Parts	
Lower Drive Motor M2	Master Board PWB-A



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C0000

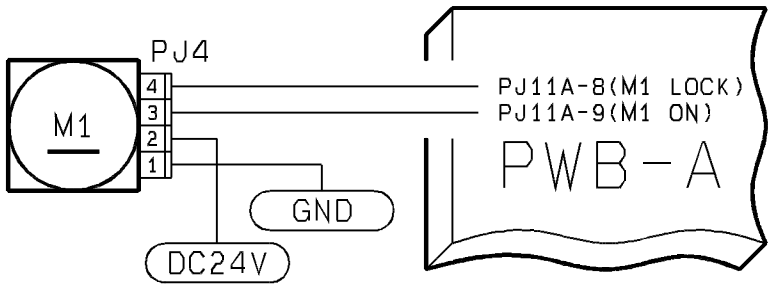
Step	Check	Result	Action
1	Lower Drive Motor turns when the Start key is pressed	NO	Correct drive coupling.
2	Lower Drive Motor operation: the voltage across PJ16A-5 on the Master Board and GND is DC5V (motor deenergized) and DC0V (motor energized) when the Start key is pressed.	NO	Change Master Board.
3	The voltage across PJ16A-4 on the Master Board and GND is DC5V (motor deenergized) and DC0V (motor energized) when the Start key is pressed.	YES	Change Master Board.
		NO	Change motor.

C0001

Step	Check	Result	Action
1	Lower Drive Motor operation: the voltage across PJ16A-5 on the Master Board and GND is DC5V after the malfunction has been reset.	NO	Change Master Board.
2	The voltage across PJ16A-4 on the Master Board and GND is DC5V after the malfunction has been reset.	YES	Change Master Board.
		NO	Change motor.

(2) C0010: Upper Drive Motor's Failure to Turn
C0011: Upper Drive Motor Turning at Abnormal Timing

Relevant Electrical Parts	
Upper Drive Motor M1	Master Board PWB-A



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C0010

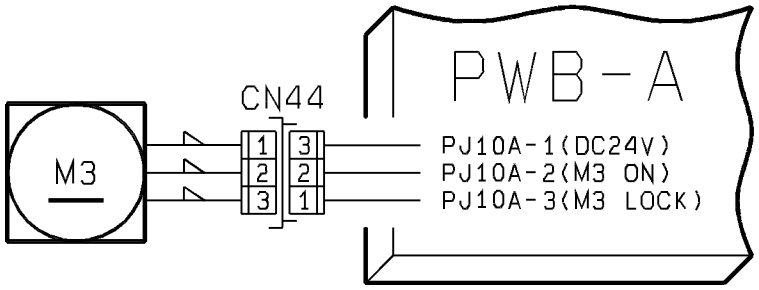
Step	Check	Result	Action
1	Upper Drive Motor turns when the Start key is pressed	NO	Correct drive coupling.
2	Upper Drive Motor operation: the voltage across PJ11A-9 on the Master Board and GND is DC5V (motor deenergized) and DC0V (motor energized) when the Start key is pressed.	NO	Change Master Board.
3	The voltage across PJ11A-8 on the Master Board and GND is DC5V (motor deenergized) and DC0V (motor energized) when the Start key is pressed.	YES	Change Master Board.
		NO	Change motor.

C0011

Step	Check	Result	Action
1	Upper Drive Motor operation: the voltage across PJ11A-9 on the Master Board and GND is DC5V after the malfunction has been reset.	NO	Change Master Board.
2	The voltage across PJ11A-8 on the Master Board and GND is DC5V after the malfunction has been reset.	YES	Change Master Board.
		NO	Change motor.

(3) C004A: Optical Section Cooling Fan Motor's Failure to Turn
C004b: Optical Section Cooling Fan Motor Turning at Abnormal Timing

Relevant Electrical Parts	
Optical Section Cooling Fan Motor M3	Master Board PWB-A



1177C09TAB

C004A

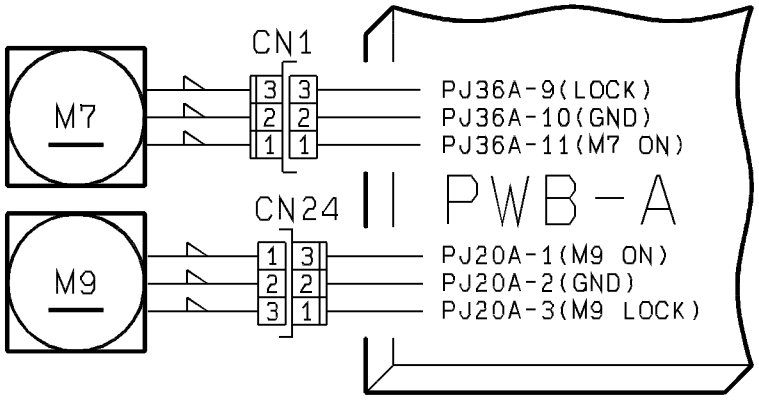
Step	Check	Result	Action
1	Optical Section Cooling Fan Motor operation: the voltage across PJ10A-2 on the Master Board and GND is DC24V (motor deenergized) and DC0V (motor energized) when the Start key is pressed.	NO	Change Master Board.
2	The voltage across PJ10A-3 on the Master Board and GND is DC24V (motor deenergized) and DC0V (motor energized) when the Start key is pressed.	YES	Change Master Board.
		NO	Change motor.

C004b

Step	Check	Result	Action
1	Optical Section Cooling Fan Motor operation: the voltage across PJ10A-2 on the Master Board and GND is DC24V after the malfunction has been reset.	NO	Change Master Board.
2	The voltage across PJ10A-3 on the Master Board and GND is DC24V after the malfunction has been reset.	YES	Change Master Board.
		NO	Change motor.

(4) C004C: Ventilation Fan Motor's Failure to Turn
C004E: Power Supply Unit Cooling Fan Motor Turning at Abnormal Timing

Relevant Electrical Parts	
Power Supply Unit Cooling Fan Motor M7 Ventilation Fan Motor M9	Master Board PWB-A



1177C10TAB

C004C

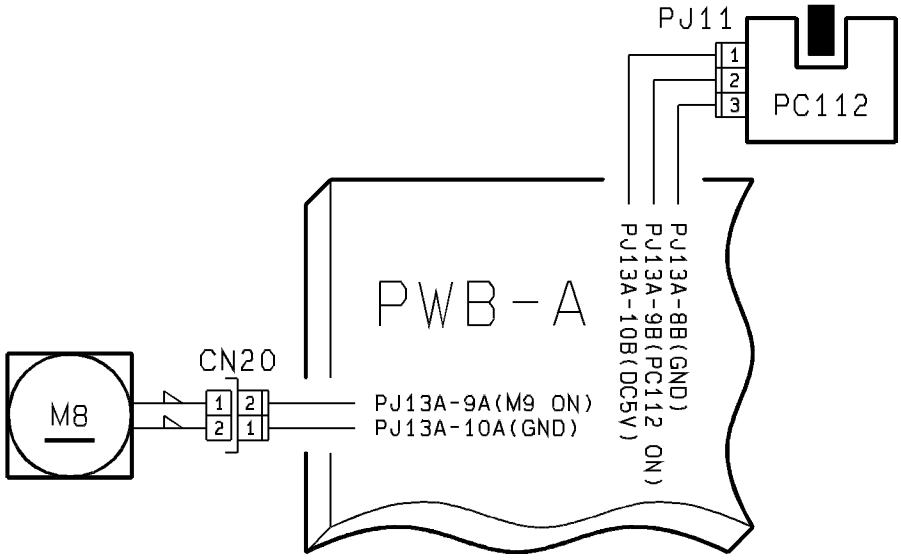
Step	Check	Result	Action
1	Ventilation Fan Motor operation: the voltage across PJ20A-1 on the Master Board and GND is DC24V during high-speed rotation and DC12V during low-speed rotation after the malfunction has been reset.	NO	Change Master Board.
2	The voltage across PJ20A-3 on the Master Board and GND is DC0V after the malfunction has been reset.	YES	Change Master Board.
		NO	Change motor.

C004E

Step	Check	Result	Action
1	Power Supply Unit Cooling Fan Motor operation: the voltage across PJ36A-11 on the Master Board and GND is DC15V during low-speed rotation and DC24V during high-speed rotation when the Start key is pressed.	NO	Change Master Board.
2	The voltage across PJ36A-9 on the Master Board and GND is DC0V (motor energized) when the Start key is pressed.	YES	Change Master Board.
		NO	Change motor.

(5) C0070: Toner Replenishing Motor's Failure to Turn
C0071: Toner Replenishing Motor Turning at Abnormal Timing

Relevant Electrical Parts	
Toner Bottle Home Position Sensor PC112 Toner Replenishing Motor M8	Master Board PWB-A



1177C11TAA

C0070

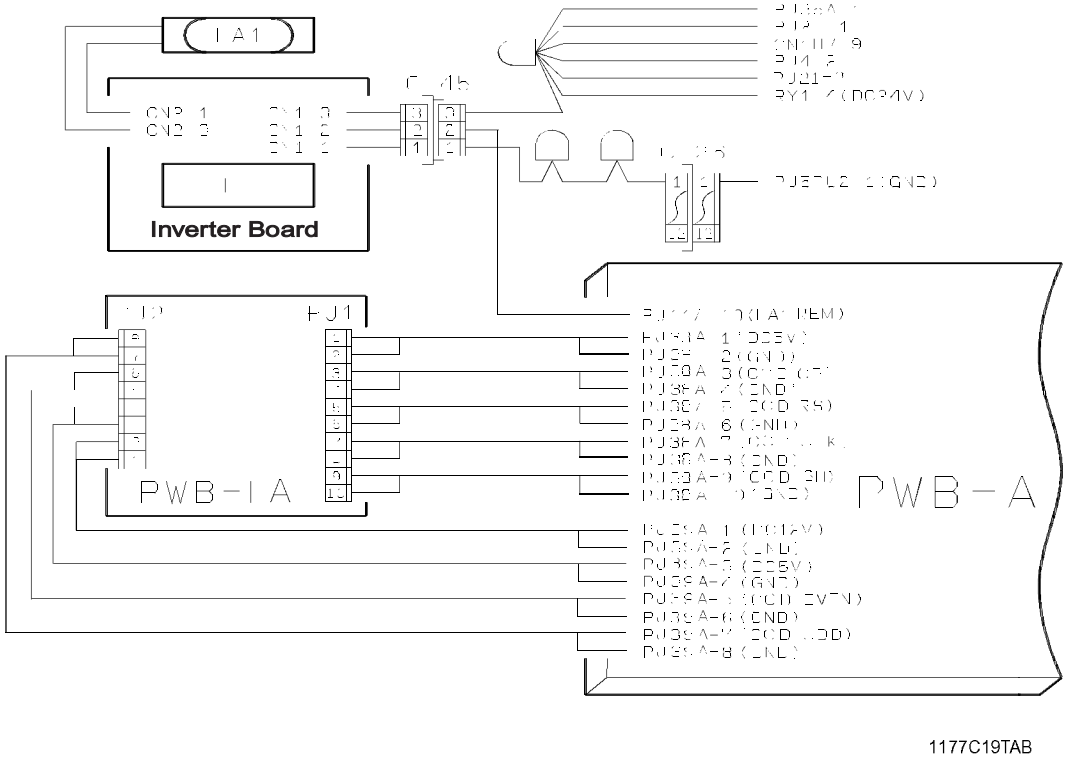
Step	Check	Result	Action
1	Toner Bottle turns when the Toner Bottle is turned a half turn and the Front Door is closed	NO	Correct drive coupling.
2	Toner Bottle Home Position Sensor operation: the voltage across PJ13A-9B on the Master Board and GND is DC0V (Toner Bottle at home position) and DC5V (Toner Bottle at a position other than home) when step 1 is performed.	YES	Change Master Board.
		NO	Change sensor.
3	Toner Replenishing Motor operation: the voltage across PJ13A-9A on the Master Board and GND is DC0V (Toner Bottle at a stop) and DC24V (Toner Bottle turning) when step 1 is performed.	YES	Change motor.
		NO	Change Master Board.

C0071

Step	Check	Result	Action
1	Toner Bottle turns abnormally after the malfunction has been reset	YES	Change Master Board.

(6) C0420: Exposure Lamp Turning ON at Abnormal Timing

Relevant Electrical Parts	
Inverter Board CCD Sensor Board PWB-IA	Master Board PWB-A



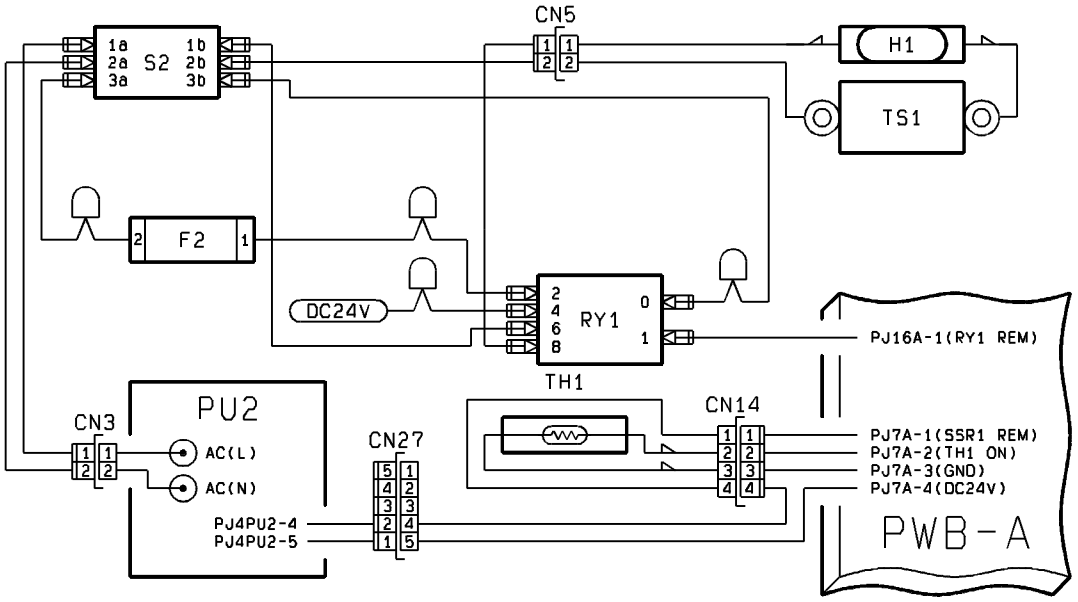
1177C19TAB

C0420

Step	Check	Result	Action
1	Exposure Lamp turns ON at abnormal timing.	NO	Change CCD Assy and Master Board.
2	Inverter Board operation: the voltage across PJ11A-10 on the Master Board and GND is 24V after the malfunction has been reset.	YES	Change Inverter Board.
		NO	Change Master Board.

(7) C0500: Warming-Up Failure
C0510: Abnormally Low Fusing Temperature
C0520: Abnormally High Fusing Temperature

Relevant Electrical Parts	
Heater Lamp H1 Fusing Thermoswitch TS1 Thermistor TH1	DC Power Supply 2 PU2 Master Board PWB-A



1177C20TAB

C0500, C0510

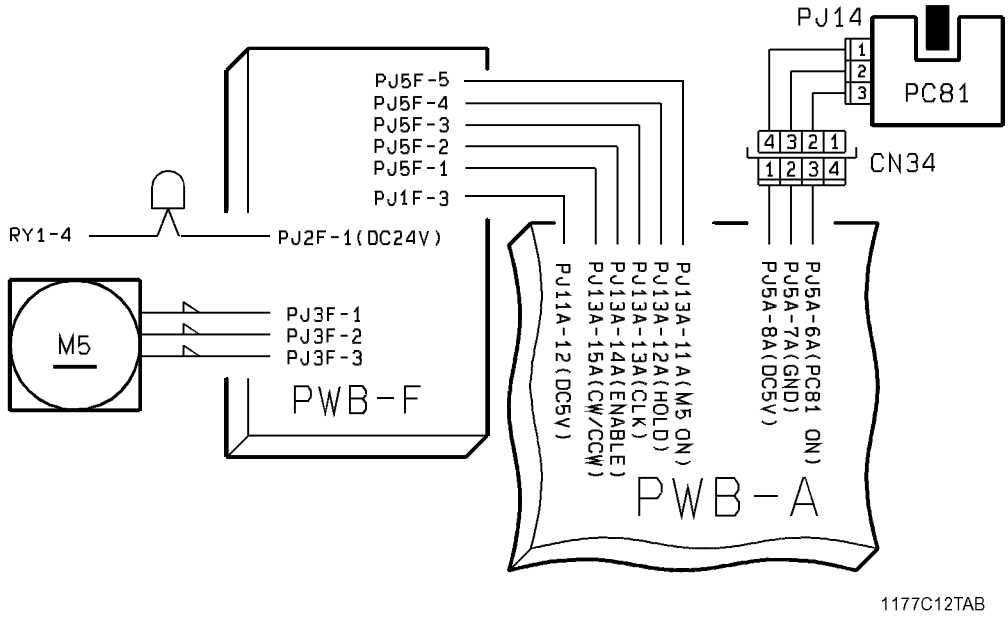
Step	Check	Result	Action
1	Heater Lamp turns ON when the Power Switch is turned ON	YES	Correct Thermistor for mounting position and/or clean.
		NO	Make checks from step 3 onward.
2	Thermistor operation: resistance across CN14-2 and 3 on Fusing Unit side is infinite, as measured with CN14 (4P) disconnected.	YES	Change Thermistor.
		NO	Change Master Board.
3	Fusing Thermoswitch and Heater Lamp operation: have continuity across CN5-1 and 2 on the Fusing Unit side with CN5 (2P) disconnected	YES	Change DC Power Supply 2.
		NO	Change Fusing Thermoswitch and Heater Lamp.
4	The voltage across PJ7A-1 on the Master Board and GND is DC0V (Heater Lamp ON) and DC24V (Heater Lamp OFF) when the Power Switch is turned ON.	YES	Change Master Board.
5	The voltage across PJ4PU2-4 on DC Power Supply 2 and GND is DC0V (Heater Lamp ON) and DC24V (Heater Lamp OFF) when the Power Switch is turned ON.	YES	Change DC Power Supply 2.
		NO	Plug in CN27 and CN14.

C0520

Step	Check	Result	Action
1	The Heater Lamp remains lit after the copier has warmed up.	YES	Make checks from step 2 onward.
		NO	Make checks from step 3 onward.
2	The voltage across PJ7A-1 and GND remains DC0V after the copier has warmed up.	YES	Change Master Board.
		NO	Change DC Power Supply 2.
3	The circuit across CN14-2 and 3 on the Fusing Unit side is shorted with CN14 (4P) disconnected.	YES	Change Thermistor.
		NO	Change Master Board.

(8) C0600: Scanner Motor Malfunction

Relevant Electrical Parts	
Scanner Motor M5 Scanner Home Sensor PC81	Master Board PWB-A SCP Board PWB-F

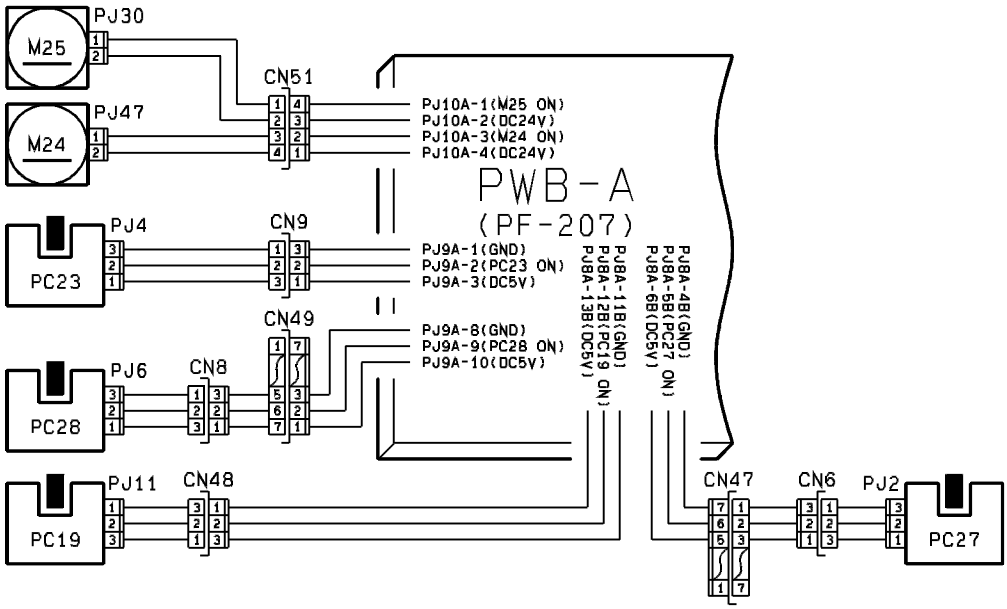


C0600

Step	Check	Result	Action
1	Have Scanner motion when it is moved manually.	NO	Correct drive coupling. Rewind cables.
2	Connectors on the SCP Board properly connected	NO	Connect.
3	The voltage across PJ11A-12 on the Master Board and GND is DC5V after the malfunction has been reset.	NO	Change Master Board.
4	The voltage across PJ2F-1 on the SCP Board and GND is DC24V	YES	Change Scanner Motor and SCP Board.
5	Scanner Home Sensor operation: the voltage across PJ5A-6A on the Master Board and GND is DC0V (sensor blocked) and DC5V (sensor unblocked).	YES	Change Master Board.
		NO	Change sensor.

(9) C0900: 3rd Drawer Lift-Up Sensor Malfunction
C0904: 3rd Drawer Lift-Up Motor Malfunction
C0950: 4th Drawer Lift-Up Sensor Malfunction
C0954: 4th Drawer Lift-Up Motor Malfunction

Relevant Electrical Parts	
3rd Drawer Lift-Up Sensor PC19 3rd Drawer Lift-Up Motor Pulse Sensor PC27 3rd Drawer Lift-Up Motor M24	4th Drawer Lift-Up Sensor PC23 4th Drawer Lift-Up Motor Pulse Sensor PC28 4th Drawer Lift-Up Motor M25 PF-207 Master Board PWB-A



1177C13TAB

C0900, C0904

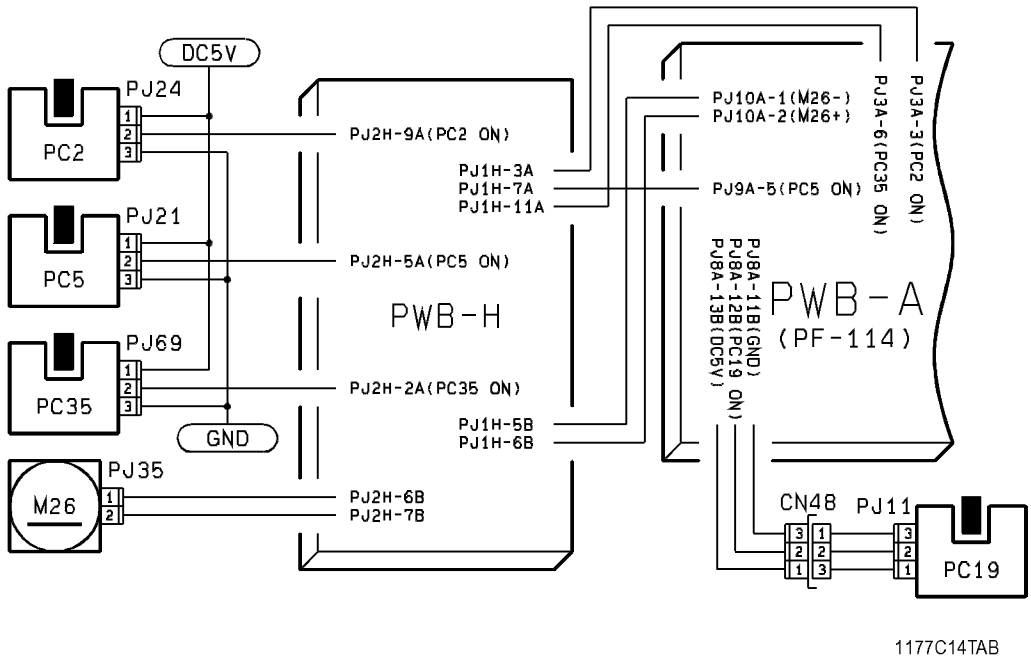
Step	Check	Result	Action
1	3rd Drawer Lift-Up Motor turns when the 3rd Drawer is slid out and then back in	NO	Correct drive coupling.
2	3rd Drawer Lift-Up Motor operation: the voltage across PJ10A-3 on the Master Board and GND is DC0V (motor deenergized) and DC24V (motor energized) after the 3rd Drawer has been slid in position.	YES	Change motor.
		NO	Change Master Board.
3	3rd Drawer Lift-Up Motor Pulse Sensor operation: the voltage across PJ8A-5B on the Master Board and GND varies in the range between DC0V and DC5V while the 3rd Drawer Lift-Up is energized.	YES	Change Master Board.
		NO	Change pulse disk and gear. Change sensor.
4	3rd Drawer Lift-Up Sensor operation: the voltage across PJ8A-12B on the Master Board and GND is DC5V (sensor unblocked) and DC0V (sensor blocked).	YES	Change Master Board.
		NO	Correct retraction mechanism. Change sensor.

C0950, C0954

Step	Check	Result	Action
1	4th Drawer Lift-Up Motor turns when the 4th Drawer is slid out and then back in	NO	Correct drive coupling.
2	4th Drawer Lift-Up Motor operation: the voltage across PJ10A-1 on the Master Board and GND is DC0V (motor deenergized) and DC24V (motor energized) after the 4th Drawer has been slid in position.	YES	Change motor.
		NO	Change Master Board.
3	4th Drawer Lift-Up Motor Pulse Sensor operation: the voltage across PJ9A-9 on the Master Board and GND varies in the range between DC0V and DC5V while the 4th Drawer Lift-Up Motor is energized.	YES	Change Master Board.
		NO	Change pulse disk and gear. Change sensor.
4	4th Drawer Lift-Up Sensor operation: the voltage across PJ9A-2 on the Master Board and GND is DC5V (sensor unblocked) and DC0V (sensor blocked).	YES	Change Master Board.
		NO	Correct retraction mechanism. Change sensor.

(10) C0990: Main Tray Upward Motion Failure
C0991: Main Tray Downward Motion Failure
C0992: Main Tray Downward Motion Failure
C0993: Main Tray Upward Motion Failure
C0994: Elevator Motor's Failure to Turn

Relevant Electrical Parts	
Main Tray Lower Position Sensor PC2	Elevator Motor M26
Elevator Motor Pulse Sensor PC5	Cabinet Transport Board PWB-H
3rd Drawer Lift-Up Sensor PC19	PF-114 Master Board PWB-A
Lower Limit Position Sensor PC35	



1177C14TAB

C0990, C0991

Step	Check	Result	Action
1	3rd Drawer Lift-Up Sensor operation: the voltage across PJ8A-12B on the Master Board and GND is DC5V (sensor unblocked) and DC0V (sensor blocked).	YES	Change Master Board.
		NO	Correct retraction mechanism. Change sensor.

C0992, C0993

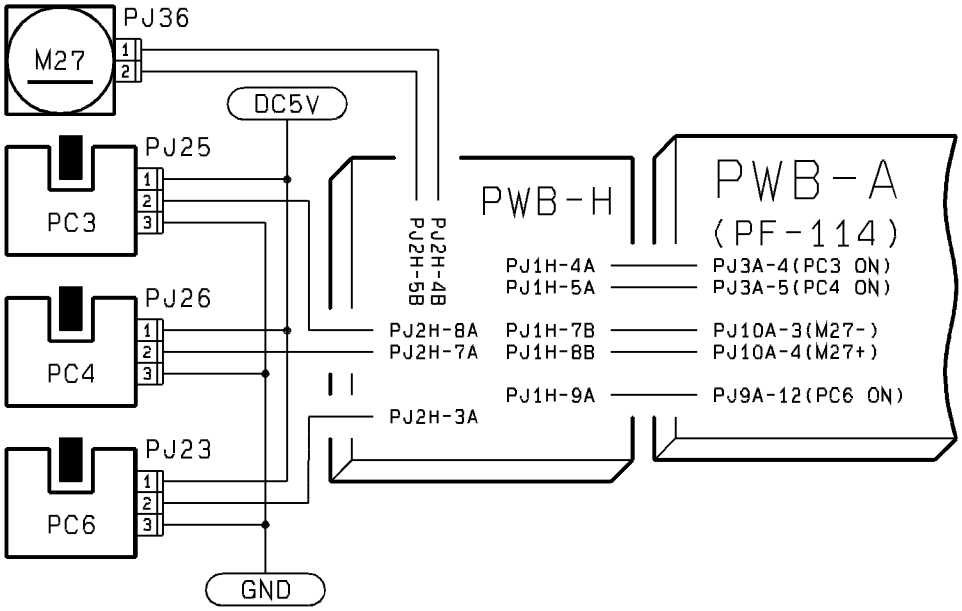
Step	Check	Result	Action
1	Lower Limit Position Sensor operation: the voltage across PJ3A-6 on the Master Board and GND is DC5V (sensor unblocked) and DC0V (sensor blocked).	YES	Change Master Board.
		NO	Change sensor, Cabinet Transport Board, and flat cable.
2	Main Tray Lower Position Sensor operation: the voltage across PJ3A-3 on the Master Board and GND is DC5V (sensor unblocked) and DC0V (sensor blocked).	YES	Change Master Board.
		NO	Change sensor, Cabinet Transport Board, and flat cable.

C0994

Step	Check	Result	Action
1	Elevator Motor turns when the Paper Descent key is pressed	NO	Correct drive coupling.
2	Elevator Motor operation: the voltage across PJ10A-1 (descent)/PJ10A-2 (ascent) on the Master Board and GND is DC0V (motor deenergized) and DC24V (motor energized) when the tray is slid in or the Paper Descent key is pressed.	YES	Change motor, Cabinet Transport Board, and flat cable.
		NO	Change Master Board.
3	Elevator Motor Pulse Sensor operation: the voltage across PJ9A-5 on the Master Board and GND varies in the range between DC0V and DC5V while the Elevator Motor is energized.	YES	Change Master Board.
		NO	Change pulse disk and gear. Change sensor.

(11) C0998: Shifter Transfer Failure
C0999: Shifter Return Failure
C099A: Shifter Return Failure
C099b: Shifter Transfer Failure
C099C: Shift Motor's Failure to Turn

Relevant Electrical Parts	
Shifter Home Position Sensor PC3	Shift Motor M27
Shifter Return Position Sensor PC4	Cabinet Transport Board PWB-H
Shift Motor Pulse Sensor PC6	PF-114 Master Board PWB-A



1177C15TAB

C0998, C0999

Step	Check	Result	Action
1	Shifter Return Position Sensor operation: the voltage across PJ3A-5 on the Master Board and GND is DC5V (sensor unblocked) and DC0V (sensor blocked).	YES	Change Master Board.
		NO	Change sensor, Cabinet Transport Board, and flat cable.

C099A, C099b

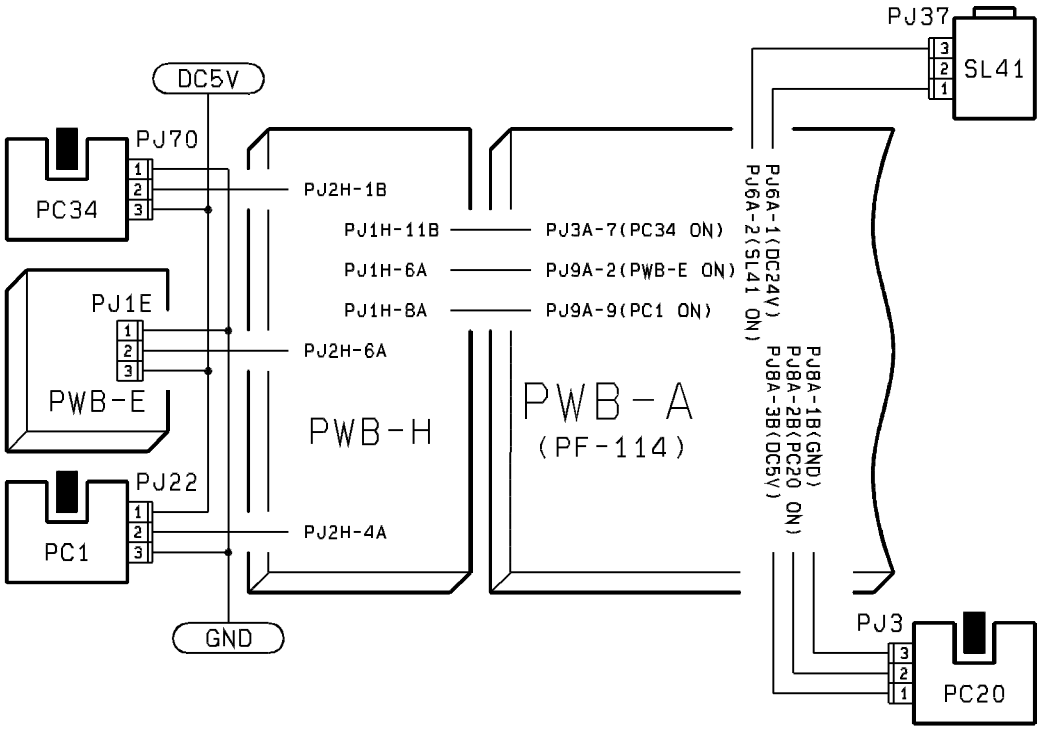
Step	Check	Result	Action
1	Shifter Home Position Sensor operation: the voltage across PJ3A-4 on the Master Board and GND is DC5V (sensor unblocked) and DC0V (sensor blocked).	YES	Change Master Board.
		NO	Change sensor, Cabinet Transport Board, and flat cable.

C099C

Step	Check	Result	Action
1	Shift Motor turns when the 3rd Drawer is slid into the copier with a paper stack loaded in the Shift Tray (the paper stack to be shifted to the Main Tray).	NO	Correct drive coupling.
2	Shift Motor operation: the voltage across PJ10A-4 (rightward motion)/PJ10A-3 (leftward motion) on the Master Board and GND is DC0V (motor deenergized) and DC24V (motor energized) when step 1 is performed.	YES	Change Shift Motor, Cabinet Transport Board, and flat cable.
		NO	Change Master Board.
3	Shift Motor Pulse Sensor operation: the voltage across PJ9A-12 on the Master Board and GND varies in the range between DC0V and DC5V while the Shift Motor is energized.	YES	Change Master Board.
		NO	Change pulse disk and gear. Change sensor.

(12) C099E: Shift Gate Position Detecting Failure
C099F: Shift Gate Position Detecting Failure
C0996: 3rd Drawer Lock Release Failure
C0F79: Paper Empty Sensor Failure

Relevant Electrical Parts	
Shift Tray Paper Empty Sensor PC1 3rd Drawer Paper Empty Sensor PC20 Shift Gate Position Detecting Sensor PC34	3rd Drawer Lock Solenoid SL41 Main Tray Paper Empty Board PWB-E Cabinet Transport Board PWB-H PF-114 Master Board PWB-A



1177C16TAB

C099E, C099F

Step	Check	Result	Action
1	Shift Gate Position Detecting Sensor operation: the voltage across PJ3A-7 on the Master Board and GND is DC5V (sensor unblocked) and DC0V (sensor blocked).	YES	Change Master Board.
		NO	Change sensor, Cabinet Transport Board, and flat cable.

C0996

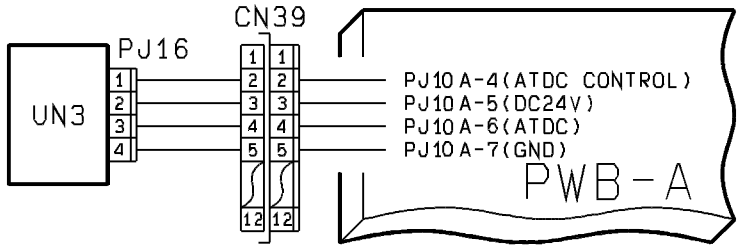
Step	Check	Result	Action
1	3rd Drawer Lock Solenoid operation: the voltage across PJ6A-2 on the Master Board and GND is DC24V (solenoid deenergized) and DC0V (solenoid energized, instantaneous) when the Paper Descent key is pressed and the Main Tray completes its descent motion.	YES	Change solenoid.
		NO	Change Master Board.

C0F79

Step	Check	Result	Action
1	3rd Drawer Paper Empty Sensor operation: the voltage across PJ8A-2B on the Master Board and GND is DC5V (sensor unblocked) and DC0V (sensor blocked).	YES	Change Master Board.
		NO	Change sensor.
2	Main Tray Paper Empty Board operation: the voltage across PJ9A-2 on the Master Board and GND is DC5V (sensor unblocked) and DC0V (sensor blocked).	YES	Change Master Board.
		NO	Change the Main Tray Paper Empty Board, Cabinet Transport Board, and flat cable.
3	Shift Tray Paper Empty Sensor operation: the voltage across PJ9A-9 on the Master Board and GND is DC5V (sensor unblocked) and DC0V (sensor blocked).	YES	Change Master Board.
		NO	Change sensor, Cabinet Transport Board, and flat cable.

(13) C0F30: ATDC Sensor Malfunction
C0F31: ATDC Sensor Adjustment Failure

Relevant Electrical Parts	
ATDC Sensor UN3	Master Board PWB-A



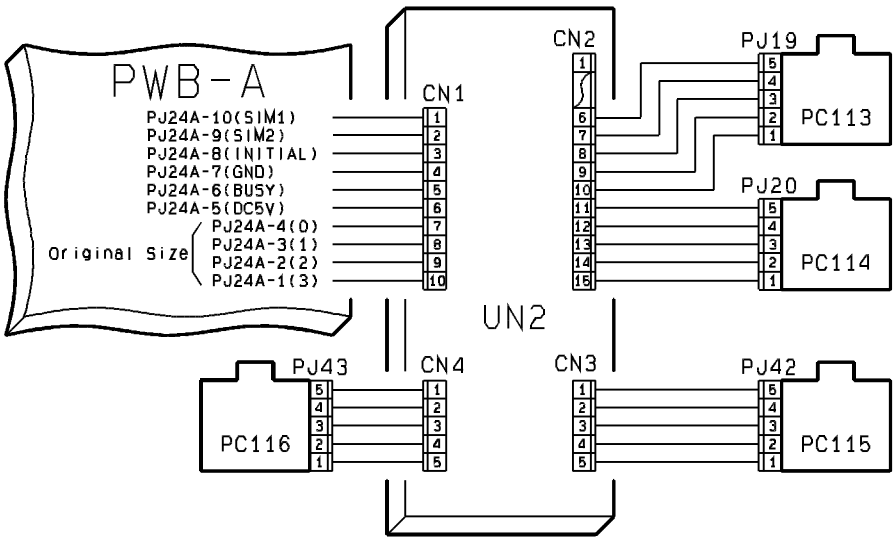
1177C17TAB

C0F30, C0F31

Step	Check	Result	Action
1	PJ10 and CN39 connectors on the Master Board are properly connected	NO	Connect.
2	ATDC Sensor operation: the voltage across PJ10A-6 on the Master Board and GND varies in the range between DC0.5V and DC4.5V while the Upper Drive Motor is energized.	YES	Change Master Board.
		NO	Change ATDC Sensor.

(14) C0F02: Original Size Detecting Board Malfunction
C0FE2 to C0FFE: Original Size Detecting Sensor Failure

Relevant Electrical Parts	
Original Size Detecting Sensor FD2 PC113	Original Size Detecting Sensor CD2 PC116
Original Size Detecting Sensor CD1 PC114	Original Size Detecting Board UN2
Original Size Detecting Sensor FD3 PC115	Master Board PWB-A



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C0F02

Step	Check	Result	Action
1	J1 and J2 jumper connections on the Original Size Detecting Board are correct.	NO	Change jumper connector positions.
2	CN1 on the Original Size Detecting Board and PJ24A on the Master Board are connected.	NO	Connect.
3	The voltage across PJ24A-6 on the Master Board and GND varies in the range between DC0V and DC5V after the Power Switch has been turned ON.	YES	Change Master Board.
		NO	Change Original Size Detecting Board.

C0FE2 to C0FFE

Step	Check	Result	Action
1	J1 and J2 jumper connections on the Original Size Detecting Board are correct.	NO	Change jumper connector positions.
2	Mounting position of the Original Size Detecting Sensor that corresponds to the malfunction code is correct.	YES	Change the Original Size Detecting Sensor, Original Size Detecting Board, and Master Board.
		NO	Correct mounting position.

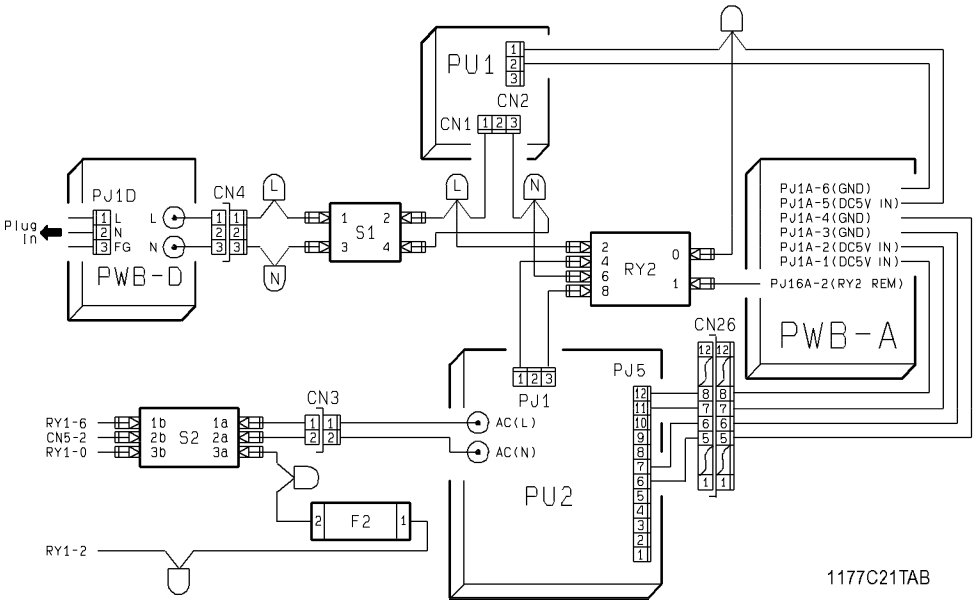
(15) C1163: Master Board Failure Including a Unit Failure of QM Coder
C1200: Master Board Failure including a Unit Failure of Memory
C1220: Master Board Failure including a Unit Failure of ASIC1
C1300: Polygon Motor's Failure to Turn
C1301: Polygon Motor Turning at Abnormal Timing
C13F0: SOS Sensor Failure
C1440: Exposure Lamp Out or a Circuit Failure
C1441: Clamp Adjustment Failure

÷ These malfunctions are detected mainly when there is a fault occurring in software, hardware, or communications.

Code	Action
C1163 C1200 C1220	1. Reset the malfunction. 2. If the malfunction is still detected, check the harness between, and PJ connections on, the CCD Assy and Master Board. 3. If connections are okay, change the Master Board.
C1300 C1301 C13F0	1. Reset the malfunction. 2. If the malfunction is still detected, check the harness between, and PJ connections on, the PH Unit and Master Board. 3. If connections are okay, change the PH Unit and Master Board.
C1440	1. Check that the Original Glass is correctly installed, the Exposure Lamp turns ON properly, and the Shading Sheet is not dirty. 2. Reset the malfunction. 3. If the malfunction is still detected, check the harness between, and PJ connections on, the CCD Assy and Master Board. 4. If connections are okay, change the CCD Assy and Master Board.
C1441	1. Check the CCD Assy and mirror for correct mounting positions. 2. Reset the malfunction. 3. If the malfunction is still detected, check the harness between, and PJ connections on, the CCD Assy and Master Board. 4. If connections are okay, change the CCD Assy and Master Board.

(16) Power is not Turned ON

Relevant Electrical Parts	
Sleep Mode Relay RY2 DC Power Supply 1 PU1 DC Power Supply 2 PU2	Power Switch S1 Front Door Interlock Switch S2 Noise Filter Board PWB-D Master Board PWB-A



÷ Power is not turned ON at all.

Step	Check	Result	Action
1	Power Switch and Noise Filter Board operation: the voltage across CN1-1 and 3 of DC Power Supply 1 is AC120V or AC230V when Power Switch is ON.	NO	Change Noise Filter Board and Power Switch.
2	Sleep Mode Relay operation: the voltage across PJ1-1 and 3 of DC Power Supply 2 is AC120V or AC230V when Power Switch is ON.	NO	Change Sleep Mode Relay.
3	DC Power Supply 1 operation: the voltage across PJ1A-5 on the Master Board and GND is DC5V when Power Switch is ON.	YES	Change Master Board. Change control panel.
		NO	Change fuse in DC Power Supply 1 or change DC Power Supply 1.
4	DC Power Supply 2 operation: the voltage across PJ1A-1/2 on the Master Board and GND is DC5V when Power Switch is ON.	YES	Change Master Board.
		NO	Change fuse in DC Power Supply 2,change DC Power Supply 2, or Front Door Interlock Switch.

÷ Only the control panel indicators turn ON.

Step	Check	Result	Action
1	Only the control panel indicators are ON.	YES	Change Master Board.

14 IMAGE FAILURE

14-1. Image Failure Troubleshooting

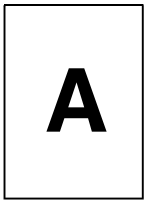
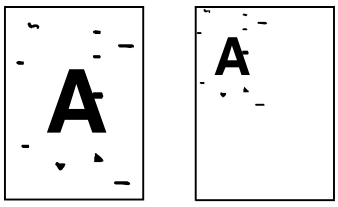
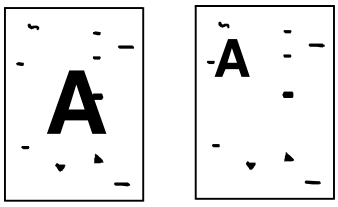
- In this chapter, troubleshooting is divided into “initial checks” and “troubleshooting procedures classified by image failures.”
- If any image failure has occurred, first make the initial checks, then proceed to the corresponding image failure troubleshooting procedure.

14-2. Initial Checks

- Determine if the failure is attributable to a basic cause or causes.

Section	Step	Check	Result	Action
Installation site	1	See “PRECAUTIONS FOR INSTALLATION” in GENERAL.	NO	Change the installation site.
Paper	2	Recommended paper used.	NO	Change.
	3	Paper is damp	YES	Change paper. Instruct user in paper storage.
Original	4	Original not flat	YES	Correct original.
	5	The original is written in light pencil.	YES	Give appropriate guidance to user.
	6	The original is transparent (OHP transparencies, etc.)	YES	Give appropriate guidance to user.
	7	Original Glass is dirty and scratched	YES	Clean or change.
PM parts	8	The PM parts, as they relate to image formation, have reached the end of cleaning/ replacement cycles.	YES	Clean or change. See Maintenance Schedule.

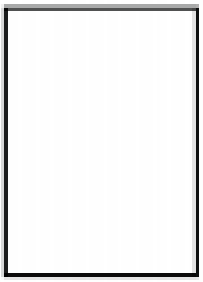
- Determine if the failure is attributable to an input system (IR) or output system (engine) fault.

Check	Result	Cause
Copy made at a reduced ratio. Original  1177T03YA	Full-size copy Reduced copy  1177T04YA	Input system
	Full-size copy Reduced copy  1177T05YA	Output system

14-3. Troubleshooting Procedures Classified by Image Failure

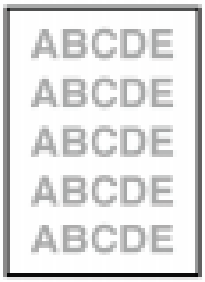
÷ Image Failure Samples

1. Blank copy

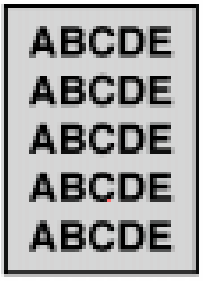


2. Black copy

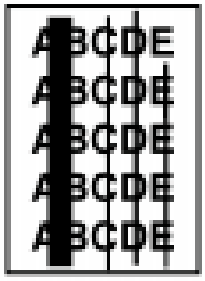
3. Low image density



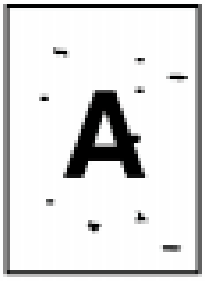
4. Foggy background



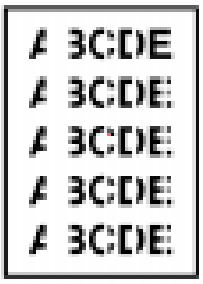
5. Black streaks or bands



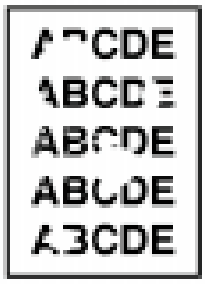
6. Black spots



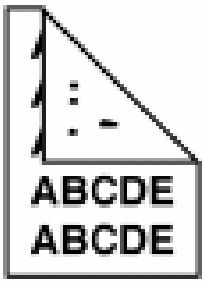
7. Blank streaks or bands



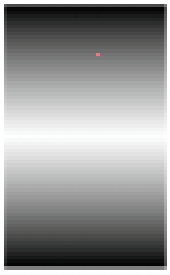
8. Void areas



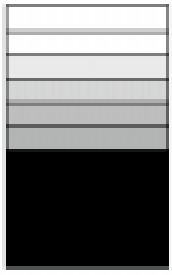
9. Smear on back



10. Uneven image density

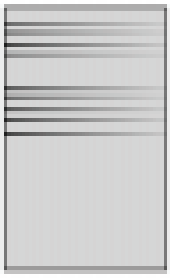


11. Gradation reproduction failure



12. Rough image

13. Periodically uneven image



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(1) Blank copy

Section	Step	Check	Result	Action
Engine	1	The Imaging Unit is installed all the way in position.	NO	Install correctly.
	2	There is Drive to the Imaging Unit.	NO	Correct or change drive coupling.
	3	The Image Transfer Corona wire is intact.	NO	Install correctly.
	4	Wiring between the High Voltage Unit and Image Transfer Corona is connected.	YES	Change High Voltage Unit.
			NO	Connect.
	5	Wiring between the PH Unit and Master Board connected.	YES	Change PH Unit and Master Board.
IR	1	Scanner shading position is okay.	NO	Correct the IR shading position. (See "IR/Shading Position" in ADJUSTMENTS.)

(2) Black copy

Section	Step	Check	Result	Action
Engine	1	Installed position of the PC Drum Charge Corona is okay.	NO	Install correctly.
	2	Wiring between the High Voltage Unit and PC Drum Charge Corona is connected.	NO	Connect.
	3	The PC Drum is properly grounded.	NO	Clean or change the PC Drum Ground Plate.
	4	Developing bias contact is dirty and deformed.	YES	Clean or change the developing bias contact.
	5	Wiring between the High Voltage Unit and developing bias is connected.	YES	Change High Voltage Unit.
			NO	Connect.
	6	Wiring between the PH Unit and Master Board is connected.	YES	Change PH Unit and Master Board.
IR	1	Exposure Lamp is ON.	NO	Change Exposure Lamp.
	2	CCD Assy correctly installed	NO	Correct the installed position. (See DISASSEMBLY.)
	3	Wiring between the CCD Assy and Master Board is connected.	YES	Change the CCD Assy and Master Board.
			NO	Connect.

(3) Low image density

Section	Step	Check	Result	Action
Engine	1	Image Transfer Corona is dirty.	YES	Clean or change.
	2	Wiring between the High Voltage Unit and Image Transfer Corona is connected.	NO	Connect.
	3	Developing bias contact is dirty and deformed.	YES	Clean or change.
	4	Wiring between the High Voltage Unit and developing bias is connected.	NO	Connect.
	5	The ATDC Sensor gain value is correct.	NO	Re-input.
IR	1	Shading position is okay.	NO	Correct the IR shading position. (See "IR/Shading Position" in ADJUSTMENTS.)

(4) Foggy background

Section	Step	Check	Result	Action
—	1	Extraneous light entered the copier.	YES	Protect copier from extraneous light.
Engine	1	Cleaning Blade is contaminated with foreign matter and paper dust	YES	Clean or change.
	2	PC Drum is contaminated with foreign matter.	YES	Clean or change.
	3	Sleeve/Magnet Roller is dirty.	YES	Clean.
	4	Developing bias contact is dirty and deformed.	YES	Clean or change.
	5	Main Erase Lamp is dirty.	YES	Clean.
	6	T/C is high of "ATDC DETECTION LEVEL" available under Tech. Rep. Choice from Tech. Rep. Mode.	YES	Lower T/C.
IR	1	Mirrors and lens are dirty.	YES	Clean.

(5) Black streaks or bands

Section	Step	Check	Result	Action
Engine	1	PC Drum is dirty.	YES	Clean or change.
	2	Cleaning Blade has correct lateral movement	NO	Correct lateral movement mechanism.
	3	Cleaning Blade has upward curl and deterioration	YES	Change.
	4	Comb Electrode and grid mesh are dirty.	YES	Clean or change.
	5	Upper Fusing Roller is dirty.	YES	Clean or change.
	6	PH Unit window is dirty.	YES	Clean.
IR	1	Mirrors and lens is dirty.	YES	Clean.
	2	Exposure Lamp is dirty.	YES	Clean.

(6) Black spots

Section	Step	Check	Result	Action
Engine	1	PC Drum is dirty.	YES	Clean or change.
	2	PC Drum Paper Separator Fingers are dirty.	YES	Clean or change.
	3	Toner spilled over areas inside copier	YES	Clean.
	4	Upper Fusing Roller is dirty.	YES	Clean or change.
	5	Caked toner is in the Developing Unit	YES	Change developer.
	6	T/C is high of “ATDC DETECTION LEVEL” available under Tech. Rep. Choice from Tech. Rep. Mode.	YES	Lower T/C.

(7) Blank streaks or bands

Section	Step	Check	Result	Action
Engine	1	PC Drum is scratched and dirty.	YES	Clean or change.
	2	PC Drum Paper Separator Fingers are dirty and deformed.	YES	Clean or change.
	3	PC Drum is properly grounded	NO	Clean or change PC Drum Ground Plate.
	4	Image Transfer Corona wire is dirty.	YES	Clean or change.
	5	Comb Electrode and grid mesh are dirty.	YES	Clean or change.
	6	Upper Fusing Roller is scratched and dirty.	YES	Clean or change.
	7	Upper Fusing Paper Separator Fingers are scratched and dirty.	YES	Change.
	8	DB is plugged with caked toner and foreign matter	YES	Remove foreign matter. Change developer.
	9	PH Unit window is dirty.	YES	Clean.
IR	1	Mirror is dirty.	YES	Clean.
	2	Shading sheet is dirty.	YES	Clean.
	3	Scanner shading position is okay.	NO	Correct the IR shading position. (See “IR/Shading Position” in ADJUSTMENTS.)

(8) Void areas

Section	Step	Check	Result	Action
Engine	1	Image Transfer Corona is correctly installed	NO	Reinstall.
	2	Image Transfer Corona wire is correctly installed.	NO	Reinstall.
	3	Upper Fusing Roller is scratched and dirty.	YES	Change.
	4	Toner is even on Sleeve/Magnet Roller.	NO	Adjust DB. (See ADJUSTMENTS.) Correct developer conveying mechanism.
	5	DB is plugged with caked toner and foreign matter	YES	Remove foreign matter. Change developer.

(9) Smear on back

Section	Step	Check	Result	Action
Engine	1	Suction Belts are dirty.	YES	Clean.
	2	Image Transfer Corona is dirty.	YES	Clean.
	3	Pre-Image Transfer Guide Plate is dirty.	YES	Clean.
	4	Pre-Fusing Unit Guide Plate is dirty.	YES	Clean.
	5	Fusing Rollers is dirty.	YES	Clean or change.
	6	Toner spilled over area inside copier.	YES	Clean.

(10) Uneven image density

Section	Step	Check	Result	Action
Engine	1	PC Drum is properly grounded.	NO	Clean or change PC Drum Ground Plate.
	2	Comb Electrode and grid mesh are dirty and deterio-rated.	YES	Clean or change.
	3	Image Transfer Corona is dirty and deteriorated	YES	Clean or change.
	4	Toner is even on Sleeve/Mag-net Roller.	NO	Adjust DB. (See ADJUST-MENTS.) Correct developer conveying mechanism.
IR	1	Mirrors and lens are dirty.	YES	Clean.
	2	Exposure Lamp is dirty and deteriorated.	YES	Clean or change.

(11) Gradation reproduction failure

Section	Step	Check	Result	Action
Engine	1	Wiring between the PH Unit and Master Board is connected.	YES	Change the PH Unit and Master Board.
IR	1	Wiring between the CCD Assy and Master Board is connected.	YES	Change the CCD Assy and Master Board.
			NO	Connect.

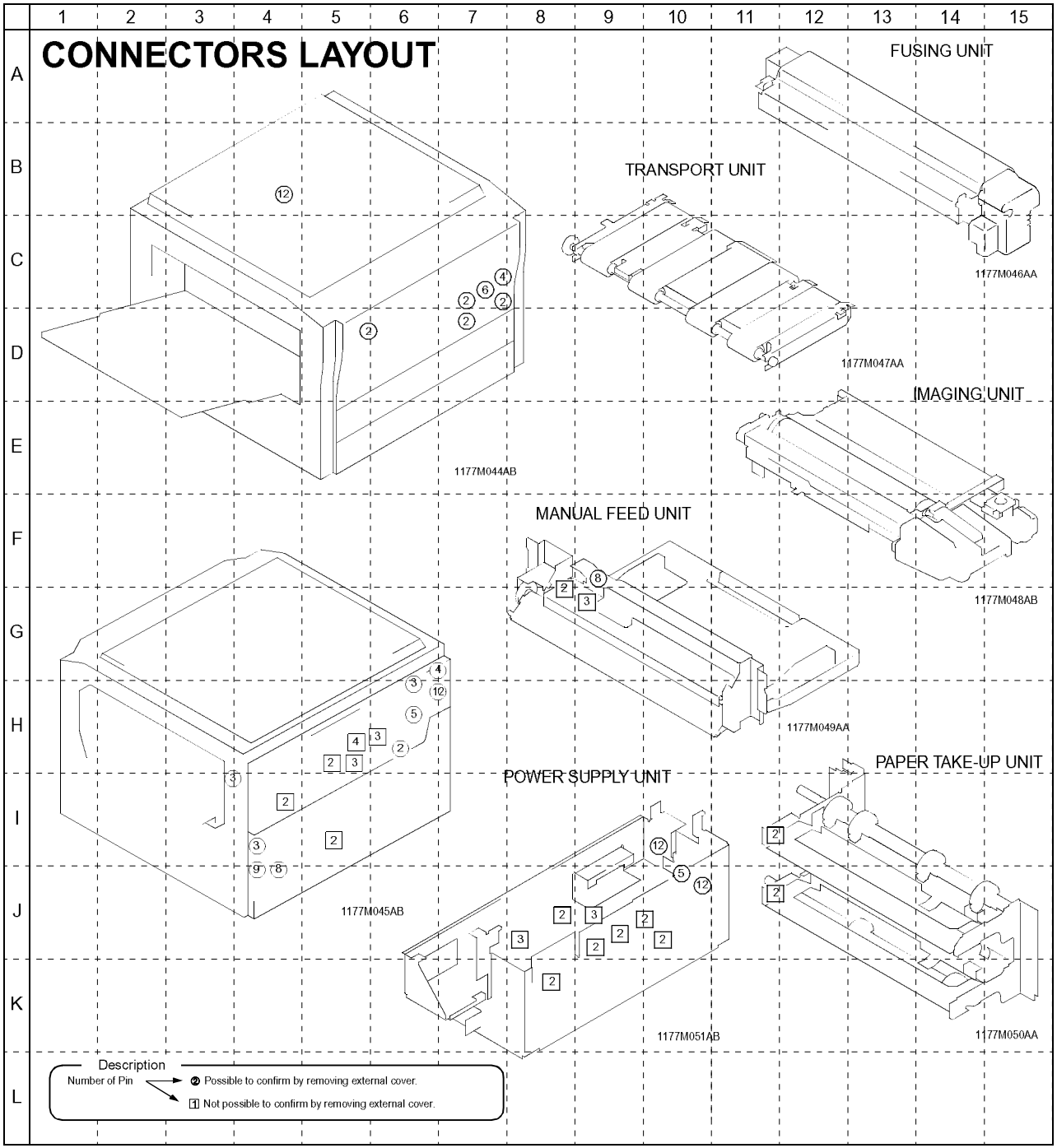
(12) Rough image

Section	Step	Check	Result	Action
Engine	1	Foreign matter and caked toner inside Imaging Unit and at DB.	YES	Remove foreign matter and caked toner. Change developer.
	2	Image Transfer Corona wire is dirty and deteriorated	YES	Clean or change.
	3	Wiring between the High Voltage Unit and Image Transfer Corona is connected.	YES	Change High Voltage Unit.
			NO	Connect.
IR	1	Wiring between the CCD Assy and Master Board is connected.	YES	Change the CCD Assy and Master Board.
			NO	Connect.

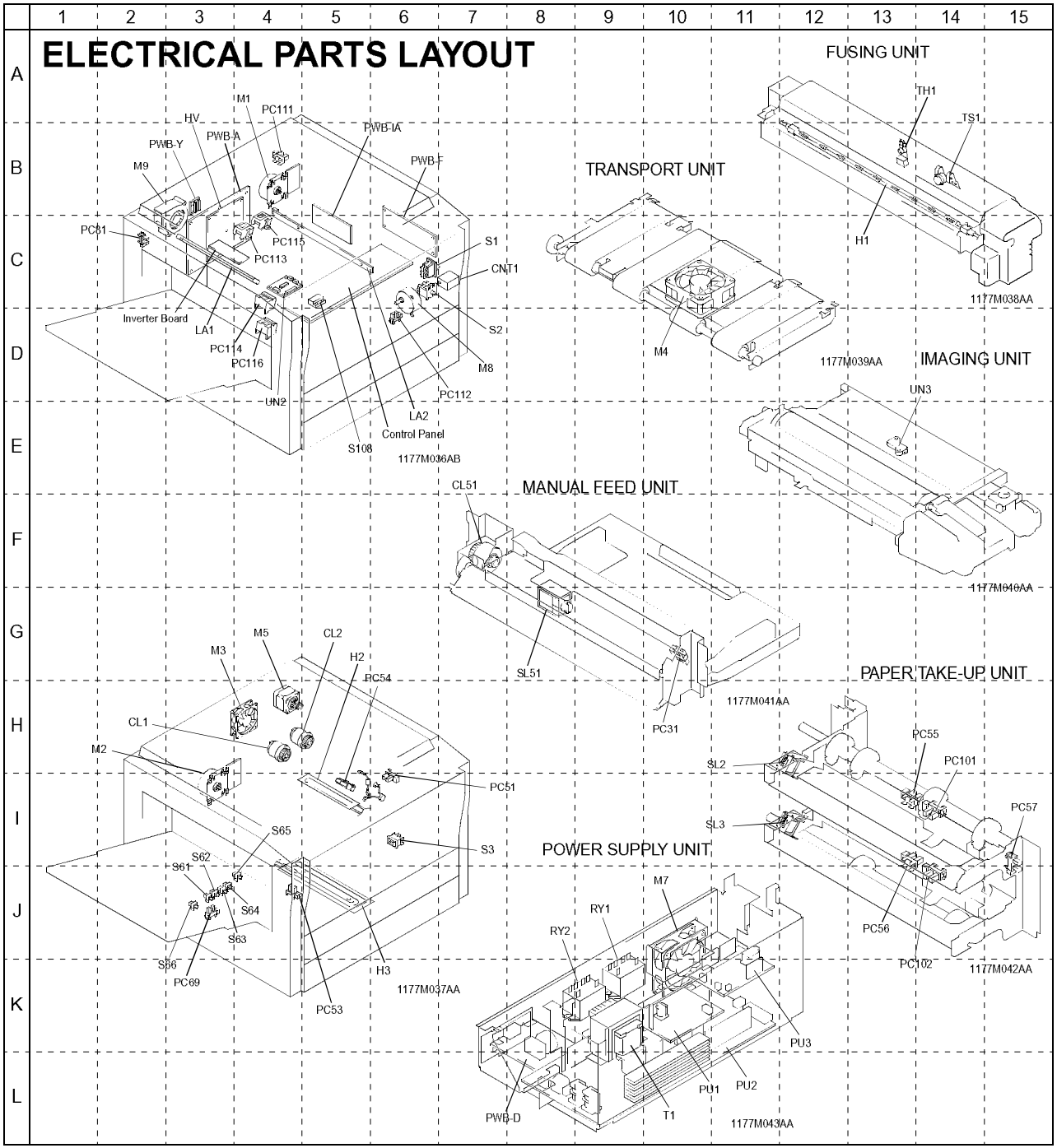
(13) Periodically uneven image

Section	Step	Check	Result	Action
Engine	1	The Imaging Unit is securely fastened with the dedicated fixing screws.	NO	Secure in position.
	2	The PC Drum is securely fastened with the dedicated fixing nut to the drive shaft.	NO	Secure in position.
	3	Foreign matter and scratches are on PC Drum parts in contact with Ds rolls	YES	Clean or change.
	4	Foreign matter and scratches are on Ds rolls	YES	Clean or change.
	5	Imaging Unit drive gear is cracking and has foreign matter.	YES	Clean or change.
	6	PC Drum drive gear is cracking and has foreign matter, and a loose belt.	YES	Clean, change, or adjust.
	7	Transport/Synchronizing Roller drive gear is cracking and has foreign matter	YES	Clean or change.
	8	Suction Belt drive gear is cracking and has foreign matter	YES	Clean or change.
	9	Fusing Unit drive gear is cracking and has foreign matter	YES	Clean or change.
	10	The PH Unit is securely fastened.	YES	Change PH Unit and Master Board.
			NO	Secure in position.
IR	1	Scanner Motor drive pulley is cracking and has foreign matter and a loose belt	YES	Change pulley. Remove foreign matter. Adjust belt tension.
	2	The Scanner Motor is secured in position.	NO	Secure in position.
	3	The Scanner Drive Cables are wound correctly.	NO	Wind cables.
	4	Scanner rails are damaged and have foreign matter	YES	Clean or change.
	5	Scanner guide shaft is damaged and has foreign matter	YES	Clean or lubricate.
	6	The Scanner guide shaft needs lubrication.	YES	Lubricate.

CONNECTORS LAYOUT



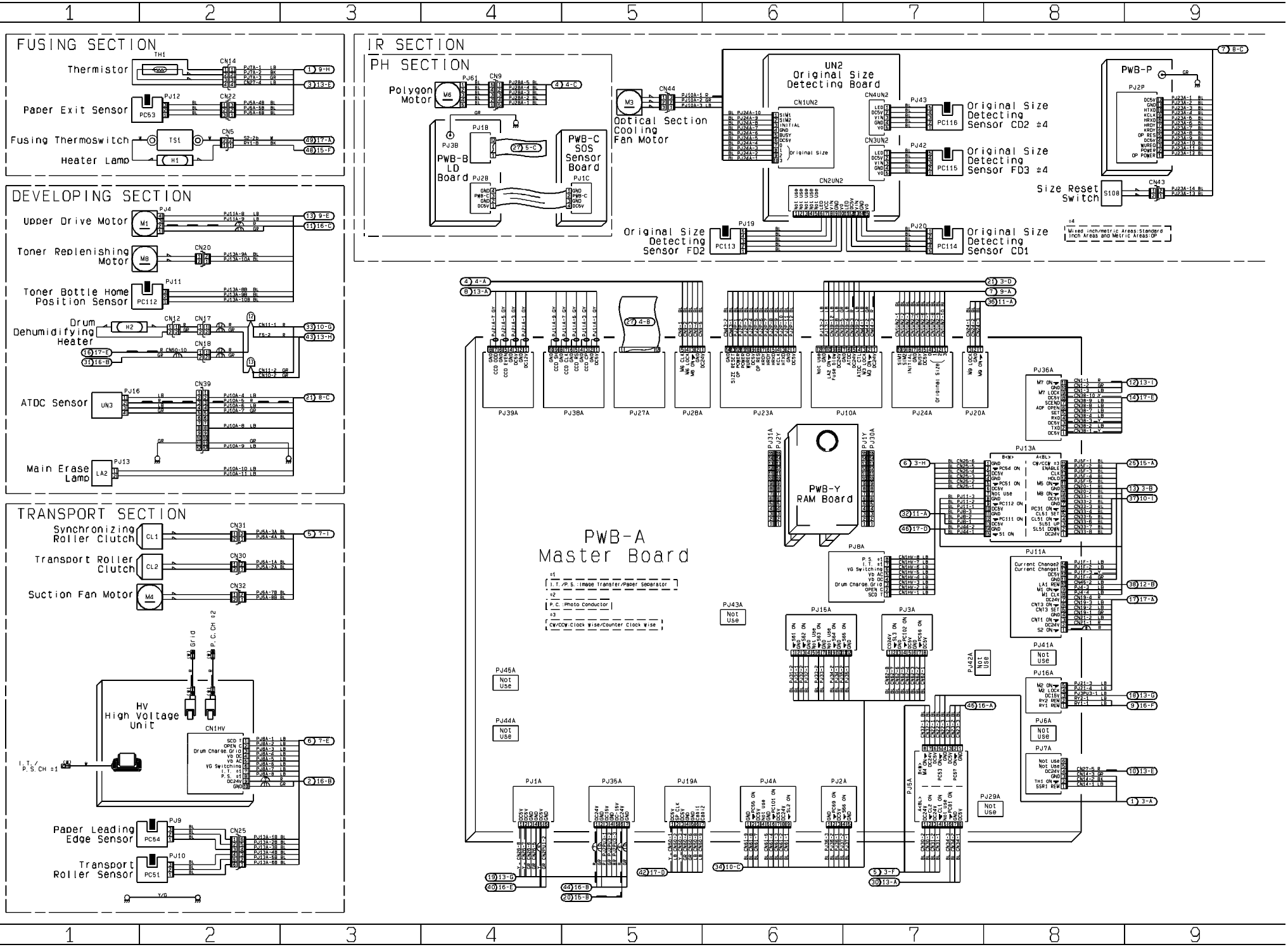
CN No.		LOCATION	GRID
CN1	3	9-J	14-I
CN3	2	9-J	14-F
CN5	2	6-H	2-B
CN6	3	8-J	14-H
CN8	3	6-H	11-A
CN9	5	6-H	4-A
CN10	2	8-J	14-I
CN11	2	10-J	10-G
CN12	2	7-D	2-D
CN14	4	5-H	2-A
CN17	2	10-J	2-D
CN18	2	9-J	2-D
CN19	4	7-C	18-C
CN20	2	7-C	2-C
CN21	2	7-C	18-B
CN22	3	5-H	2-A
CN23	3	4-I	17-A
CN25	6	7-C	2-I
CN26	12	10-J	14-D
CN27	5	10-J	14-E
CN30	2	4-I	2-F
CN31	2	5-I	2-F
CN32	2	5-H	2-F
CN33	8	9-F	10-I
CN34	4	6-G	12-A
CN35	3	9-G	11-H
CN36	2	8-G	11-I
CN38	12	6-H	18-E
CN39	12	4-B	2-D
CN43	2	5-D	9-B
CN44	3	6-H	5-A
CN45	3	3-I	13-C
CN47	2	11-I	11-E
CN48	2	11-J	11-F
CN50	12	10-I	18-D
CN61	9	4-J	10-E
CN62	8	4-J	10-F
CN126	2	8-K	14-I

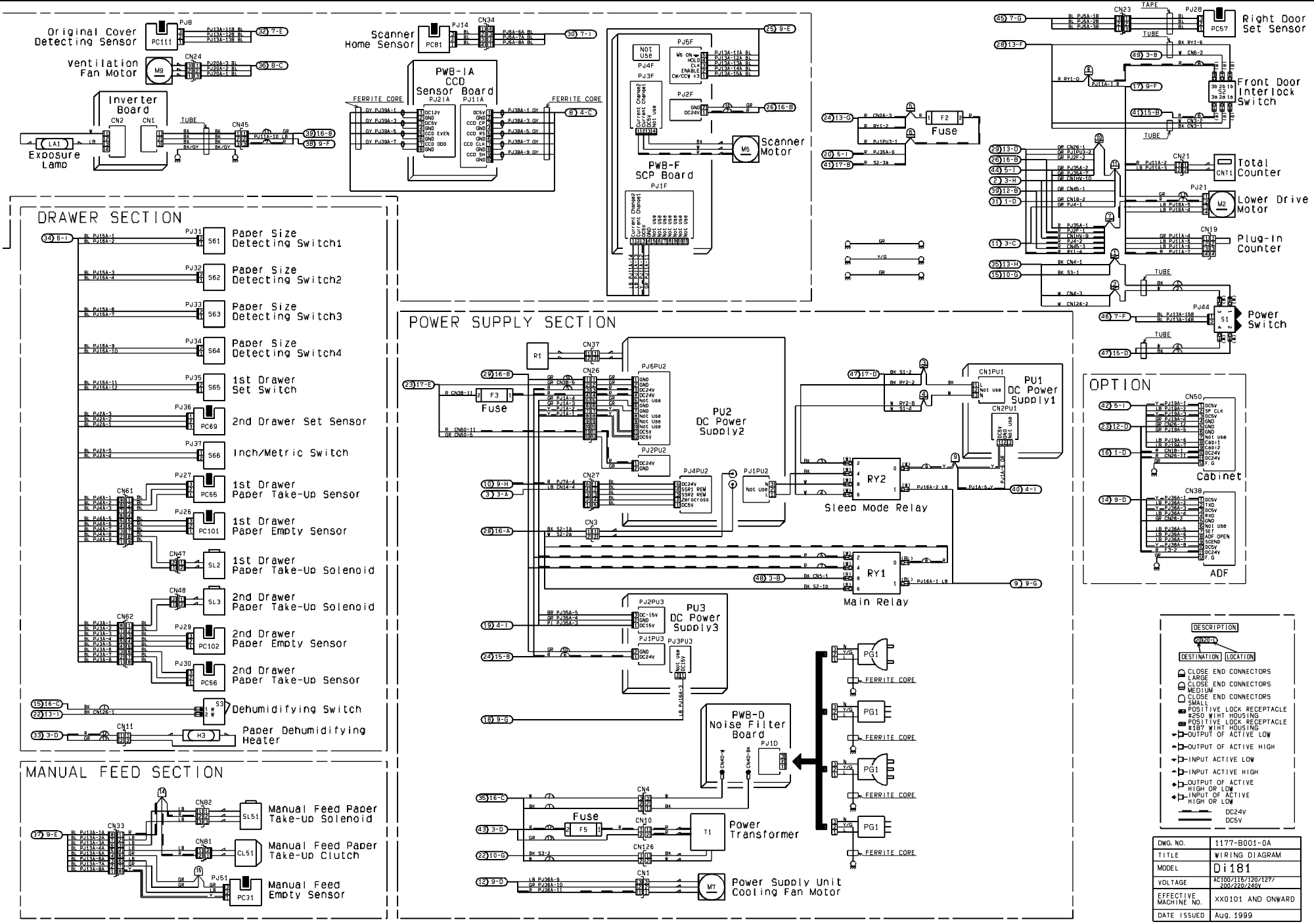


SYMBOL	PART NAME	LOCATION	GRID
CL1	Synchronizing Roller Clutch	4-H	2-F
CL2	Transport Roller Clutch	4-H	2-F
CL51	Manual Feed Paper Take-Up Clutch	7-F	11-I
CNT1	Total Counter	7-C	18-B
CNT3	Plug-In Counter	——	18-C
H1	Heater Lamp	13-B	2-B
H2	Drum Dehumidifying Heater	5-I	1-D
H3	Paper Dehumidifying Heater	5-J	11-G
HV	High Voltage Unit	3-C	2-H
LA1	Exposure Lamp	3-C	12-C
LA2	Main Erase Lamp	5-C	1-E
M1	Upper Drive Motor	4-B	2-C
M2	Lower Drive Motor	3-I	18-B
M3	Optical Section Cooling Fan Motor	4-H	5-A
M4	Suction Fan Motor	10-C	2-F
M5	Scanner Motor	4-H	15-B
M7	Power Supply Unit Cooling Fan Motor	10-K	14-I
M8	Toner Replenishing Motor	6-C	2-C
M9	Ventilation Fan Motor	3-C	11-A
PC31	Manual Feed Empty Sensor	10-G	11-I
PC51	Transport Roller Sensor	6-I	2-I
PC53	Paper Exit Sensor	4-J	2-A
PC54	Paper Leading Edge Sensor	5-I	2-I
PC55	1st Drawer Paper Take-Up Sensor	13-I	11-E
PC56	2nd Drawer Paper Take-Up Sensor	13-I	11-F
PC57	Right Door Set Sensor	15-I	18-A
PC69	2nd Drawer Set Sensor	3-J	11-D
PC81	Scanner Home Sensor	2-C	12-A
PC101	1st Drawer Paper Empty Sensor	14-I	11-E
PC102	2nd Drawer Paper Empty Sensor	14-J	11-F
PC111	Original Cover Detecting Sensor	4-B	11-A
PC112	Toner Bottle Home Position Sensor	6-D	2-C
PC113	Original Size Detecting Sensor FD2	4-C	6-C
PC114	Original Size Detecting Sensor CD1	4-C	7-C
PC115 *1	Original Size Detecting Sensor FD3	4-C	7-B
PC116 *1	Original Size Detecting Sensor CD2	4-D	7-A
PU1	DC Power Supply 1	10-K	16-D
PU2	DC Power Supply 2	11-K	14-E
PU3	DC Power Supply 3	11-K	14-G
PWB-A	Master Board	3-C	6-F
PWB-D	Noise Filter Board	8-K	15-H
PWB-F	SCP Board	6-C	14-B
PWB-IA	CCD Sensor Board	5-C	12-B
PWB-Y	RAM Board	3-B	6-E
RY1	Main Relay	9-K	15-F
RY2	Sleep Mode Relay	9-K	15-E
S1	Power Switch	6-C	18-D

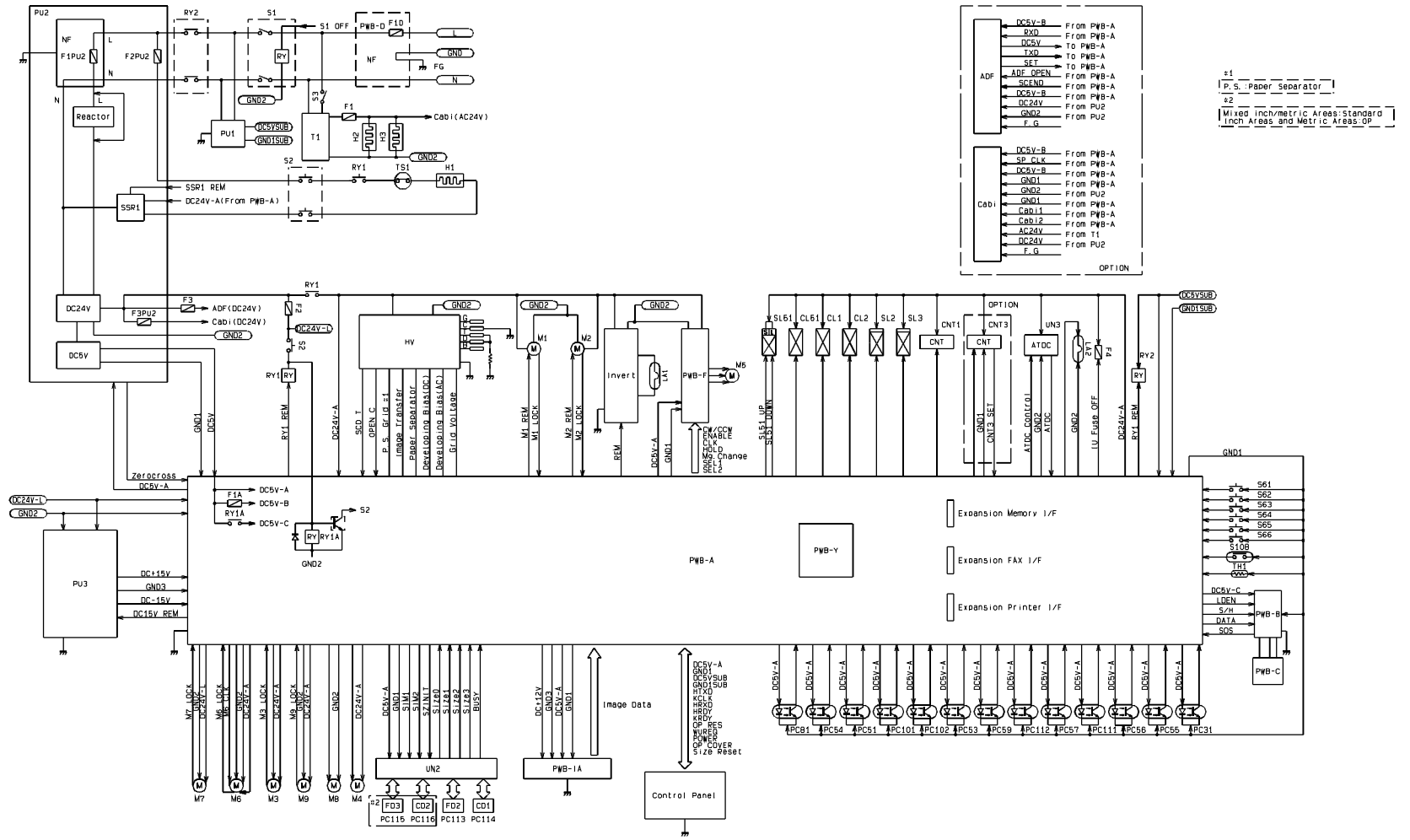
SYMBOL	PART NAME	LOCATION	GRID
S2	Front Door Interlock Switch	6-C	18-A
S3	Dehumidifying Switch	6-I	11-G
S61	Paper Size Detecting Switch 1	3-J	11-B
S62	Paper Size Detecting Switch 2	3-J	11-B
S63	Paper Size Detecting Switch 3	3-J	11-B
S64	Paper Size Detecting Switch 4	3-J	11-C
S65	Paper Size Detecting Switch 5	4-J	11-C
S66	Inch/Metric Switch	3-J	11-D
S108	Size Reset Switch	5-C	8-B
SL2	1st Drawer Paper Take-Up Solenoid	12-H	11-E
SL3	2nd Drawer Paper Take-Up Solenoid	12-I	11-F
SL51	Manual Feed Paper Take-Up Solenoid	8-G	11-H
T1	Power Transformer	9-K	14-I
TH1	Thermistor	13-B	2-A
TS1	Fusing Thermoswitch	14-B	2-B
UN2	Original Size Detecting Board	4-C	6-B
UN3	ATDC Sensor	13-E	1-D
——	Inverter Board	3-C	12-C
——	Control Panel	5-C	9-A

*1: Mixed inch/metric Areas: Standard
Inch Areas and Metric Areas: Op


FUSING SECTION
Thermistor
Paper Exit Sensor
Fusing Thermoswitch
Heater Lamp
DEVELOPING SECTION
Upper Drive Motor
Toner Replenishing Motor
Toner Bottle Home Position Sensor
Drum Dehumidifying Heater
ATDC Sensor
Main Erase Lamp
TRANSPORT SECTION
Synchronizing Roller Clutch
Transport Roller Clutch
Suction Fan Motor
HV High Voltage Unit
Paper Leading Edge Sensor
Transport Roller Sensor
IR SECTION
PH SECTION
Polygon Motor
PWB-B LD Board
PWB-C SOS Sensor Board
Optical Section Cooling Fan Motor
UN2 Original Size Detecting Board
Original Size Detecting Sensor CD2 ※4
Original Size Detecting Sensor FD3 ※4
Original Size Detecting Sensor FD2
Original Size Detecting Sensor CD1
PWB-P
Size Reset Switch
※4 Mixed inch/metric Areas:Standard inch Areas and Metric Areas:OP
PWB-A Master Board
PWB-Y RAM Board
※1 I.T./P.S.:Image Transfer/Paper Separator
※2 P.C.:Photo Conductor
※3 CW/CCW:Clock Wise/Counter Clock Wise
Not Use



DWG. NO.	1177-B001-0A
TITLE	WIRING DIAGRAM
MODEL	Di181
VOLTAGE	AC100/115/120/127/200/220/240V
EFFECTIVE MACHINE NO.	XX0101 AND ONWARD
DATE ISSUED	Aug. 1999



CL1	Synchronizing Roller Clutch
CL2	Transport Clutch
CL51	Manual Feed Paper Take-Up Clutch
CNT1	Total Counter
CNT3	Plug-In Counter
H1	Heater Lamp
H2	Drum Dehumidifying Heater
H3	Paper Dehumidifying Heater
HV	High Voltage Unit
LA1	Exposure Lamp
LA2	Main Erase Lamp
LD1	Laser Diode
M1	Upper Drive Motor
M2	Lower Drive Motor
M3	Optical Section Cooling Fan Motor
M4	Suction Fan Motor
M5	Scanner Motor
M6	Polygon Motor
M7	Power Supply Unit Cooling Fan Motor
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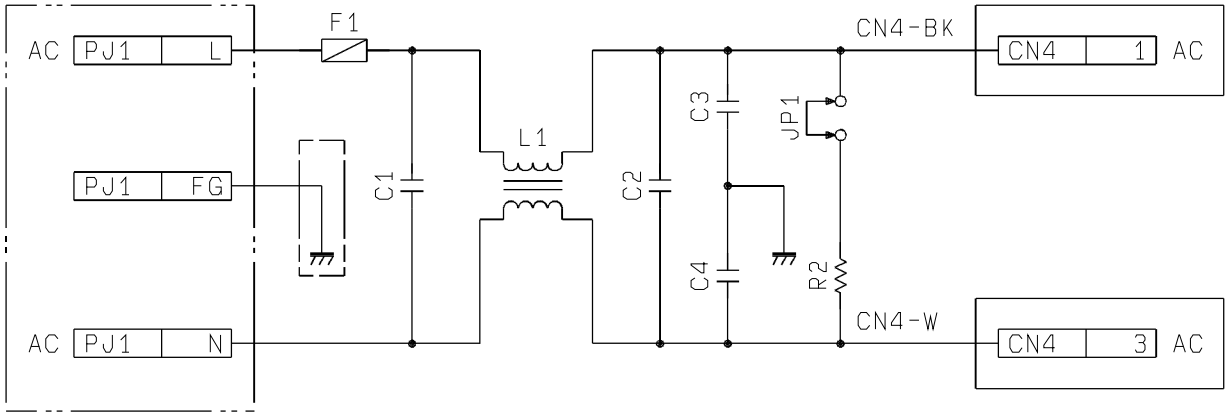
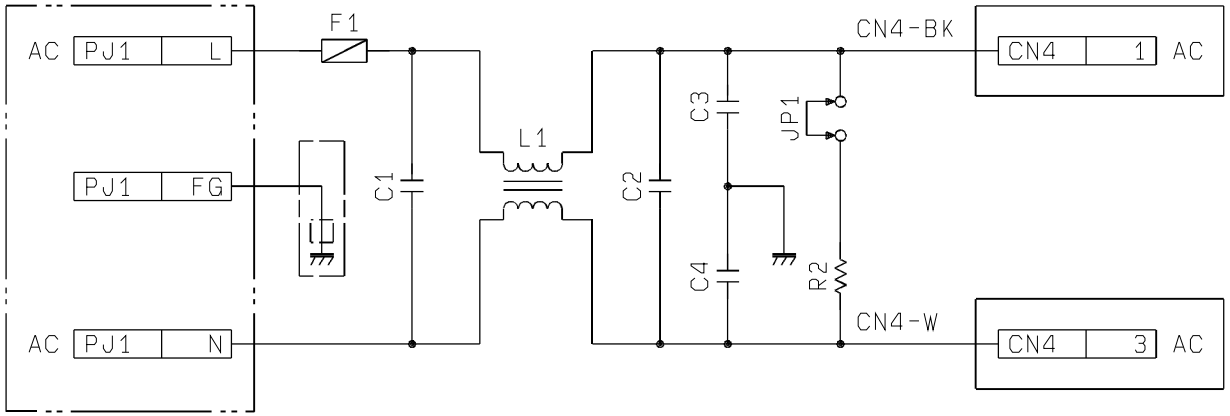
PC55	1st Drawer Paper Take-Up Sensor
PC56	2nd Drawer Paper Take-Up Sensor
PC57	Right Door Set Sensor
PC69	2nd Drawer Set Sensor
PC81	Scanner Home Sensor
PC101	1st Drawer Paper Empty Sensor
PC102	2nd Drawer Paper Empty Sensor
PC111	Original Cover Detecting Sensor
PC112	Toner Bottle Home Position Sensor
PC113	Original Size Detecting Sensor FD2
PC114	Original Size Detecting Sensor CD1
PC115	Original Size Detecting Sensor FD3
PC116	Original Size Detecting Sensor CD2
PU1	DC Power Supply1
PU2	DC Power Supply2
PU3	DC Power Supply3
PWB-A	Master Board
PWB-B	LD Board
PWB-C	SOS Sensor Board
PWB-D	Noise Filter Board
PWB-F	SCP Board

PWB-IA	CCD Sensor Board
PWB-Y	RAM Board
RY1	Main Relay
RY2	Sleep Mode Relay
S1	Power Switch
S2	Front Door Interlock Switch
S3	Dehumidifying Switch
S61	Paper Size Detecting Switch1
S62	Paper Size Detecting Switch2
S63	Paper Size Detecting Switch3
S64	Paper Size Detecting Switch4
S65	1st Drawer Set Switch
S66	Inch/Metric Switch
S108	Size Reset Switch
SL2	1st Drawer Paper Take-Up Solenoid
SL3	2nd Drawer Paper Take-Up Solenoid
SL51	Manual Feed Paper Take-Up Solenoid
T1	Power Transformer
TH1	Thermistor
TS1	Fusing Thermoswitch
UN2	Original Size Detecting Board
UN3	ATDC Sensor

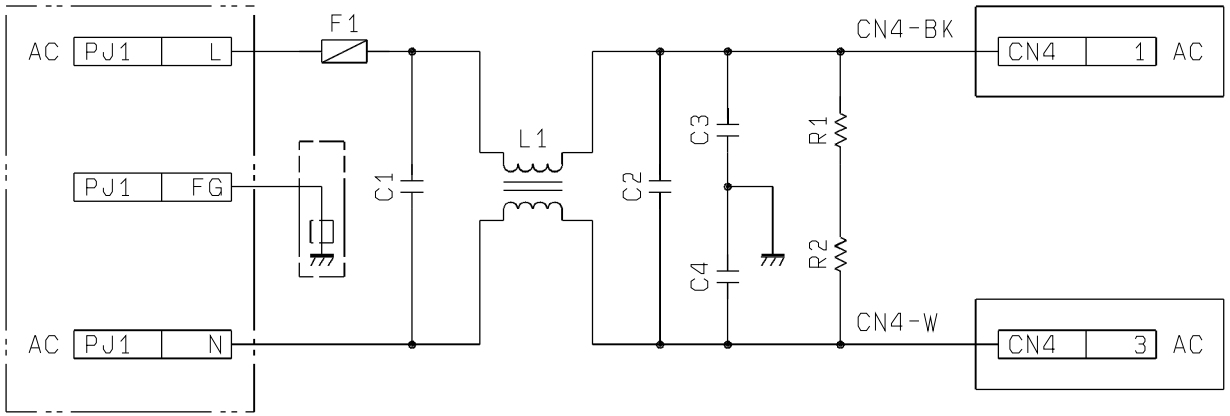
DWG. NO.	1177-B101-0A
TITLE	CIRCUIT DIAGRAM
MODEL	Di181
VOLTAGE	AC100/115/120/127/200/220/240V
EFFECTIVE MACHINE NO.	XX0101 AND ONWARD
DATE ISSUED	Aug. 1999



CIRCUIT DIAGRAM	
NAME	PWB-D(100V Area)

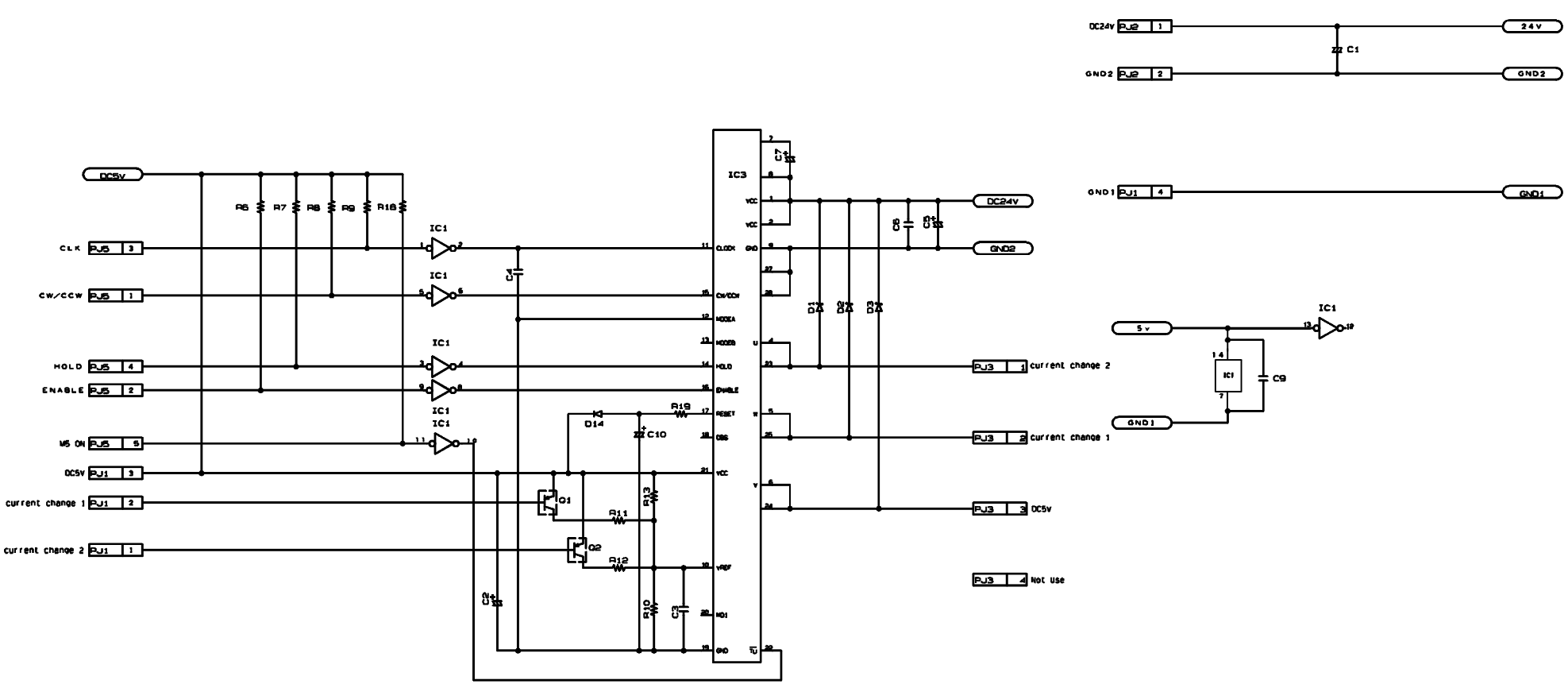


CIRCUIT DIAGRAM	
NAME	PWB-D(115V Area)



CIRCUIT DIAGRAM	
NAME	PWB-D(200V Area)

DWG. NO.	1177-B201-0A
TITLE	CIRCUIT DIAGRAM PWB-D
MODEL	Di181
VOLTAGE	AC100/110/120/127/ 200/220/240V
EFFECTIVE MACHINE NO.	XX0101 AND ONWARD
DATE ISSUED	Aug. 1999



DWG. NO.	1177-B202-0A
TITLE	CIRCUIT DIAGRAM PWB-F
MODEL	Di181
VOLTAGE	AC100/115/120/127/ 200/220/240V
EFFECTIVE MACHINE NO.	XX0101 AND ONWARD
DATE ISSUED	Aug. 1999

MAINTENANCE SCHEDULE

+ To keep the copier in good operating condition, it is recommended that the maintenance jobs described in this schedule be carried out.

PM Parts	Maintenance Schedule (K)		Part No.	Qty	Reference Page
	Cleaning	Replacement			
Paper Take-Up Section					
Paper Take-Up Roll	80	320	1151-3001-01	5	D-19
Synchronizing Roller	80			1	—
Manual Bypass Take-Up Roll	80			1	D-18
Manual Bypass Feed Roll	80			1	D-18
Manual Bypass Separator Roll	80			1	D-18
IR Section					
1st Mirror	80			1	D-20
2nd Mirror	80			1	D-20
3rd Mirror	80			1	D-20
Lens	80			1	D-20
Cooling Fan Filter	80			1	D-20
Scanner, Scanner Rail	80(*1)			1	D-20
Imaging Unit Section					
Starter		160	—	—	—
PC Drum		80	—	1	—
Toner Scattering Prevention Plate	80	320	1174-5222-01	1	D-25
Cleaning Blade		80	1139-5711-17	1	D-26
PC Drum Paper Separator Fingers	80			2	D-25
Ds Positioning Collar (Front)	80	320	1139-5204-01	1	D-25
Ds Positioning Collar (Rear)	80	320	1136-5004-01	1	D-25
Paper Dust Remover	80	160	1139-3253-01	1	D-27
Toner Antispill Mylar	80			1	D-26
Magnet Roller Lower Filter	80			1	D-26
Pre-Image Transfer Upper Guide Plate	80			1	D-26
PC Drum Charge/Image Transfer Coronas/Transport Unit					
PC Drum Charge Corona Housing	80			1	D-28
PC Drum Charge Corona Comb Electrode		320	1139-4253-02	1	D-28
PC Drum Charge Corona Grid Mesh	80			1	D-28
Image Transfer/Paper Separator Corona Housing	80			1	D-29
Image Transfer/Paper Separator Corona Wire		80	1075-0765-01	2	D-29
Pre-Image Transfer Lower Guide Plate	80			1	D-29

PM Parts	Maintenance Schedule (K)		Part No.	Qty	Reference Page
	Cleaning	Replacement			
Ozone Filter		80	1151-4509-01	1	D-30
Main Erase	80			1	D-28
Suction Belt, Deck	80			4	D-30
Fusing Section					
Pre-Fusing Guide Plate	80			1	D-30
Thermistor	80	320	9372-2610-11	1	D-31
Fusing Thermoswitch	80			1	D-31
Upper Fusing Roller	80	320	1177-5521-02	1	D-31
Lower Fusing Roller	80	320	1174-5522-01	1	D-32
Upper Separator Finger	80	320	1054-4753-01	4	D-31
Lower Separator Finger	80			5	D-32

NOTE

K=1,000 copies

This information is subject to change without notice.

Clean at 80K, based on Total Counter.

Replace at 320K, based on the PM Counter